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A Quarterly Journal of Ornithology

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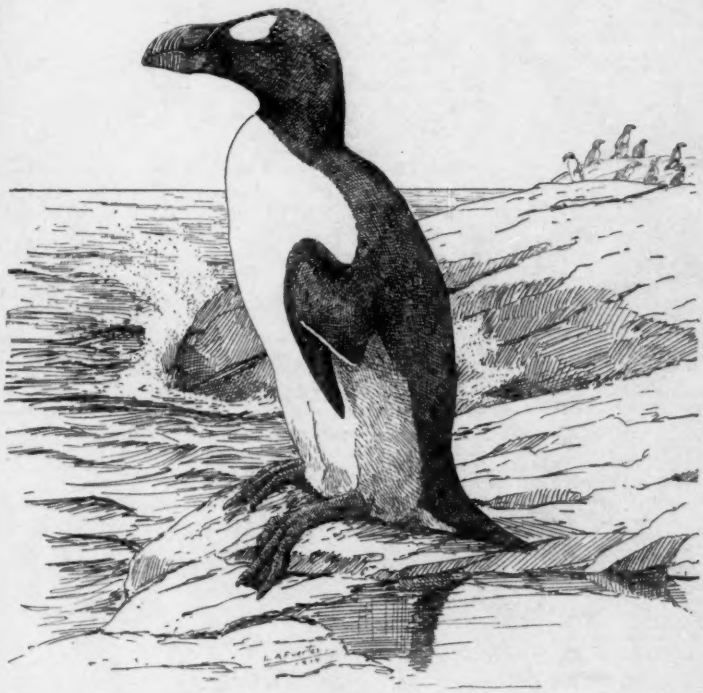

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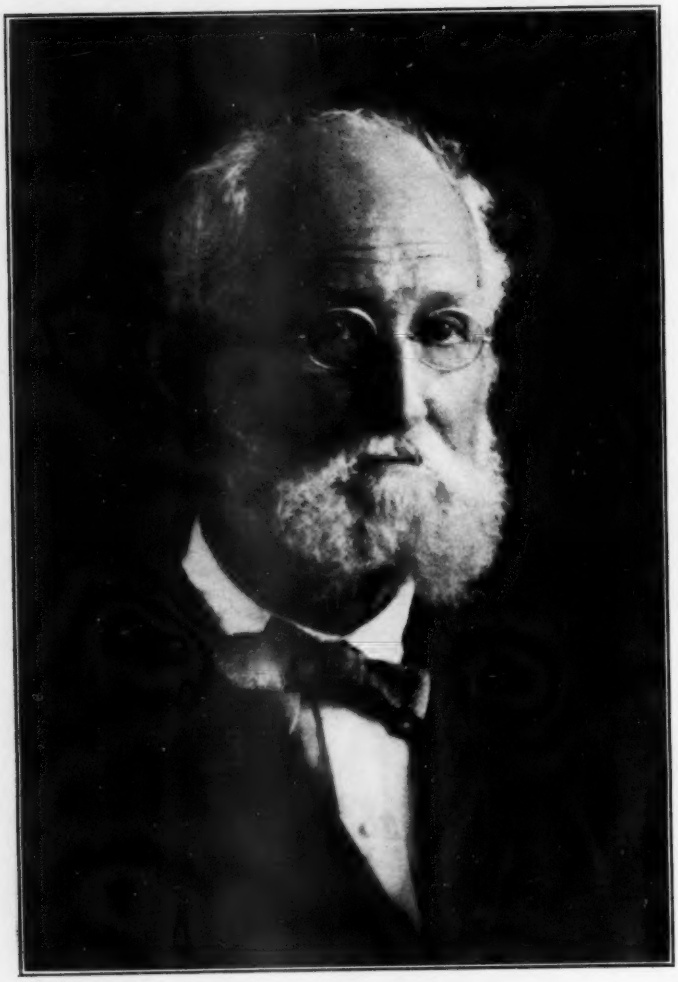

F. E. L. Beal.

THE AUK:

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VOL. XXXIV. JULY, 1917. NO. 3.

LIFE AND WRITINGS OF PROFESSOR F. E. L. BEAL.[1]

BY W. L. MCATEE.

Plate VI.

ON Saturday, September 30, 1916, Professor Beal was in his usual health and busy all day at his accustomed tasks in the Biological Survey. On the next day, October 1, while at home and working with his flowers, he was fatally stricken with cerebral hemorrhage. All things point to the conclusion that loss of consciousness, if not death itself, was instantaneous. It was a good way to go and the Professor himself had often expressed a wish for such a passing.

He had returned to Washington only a short time before, from a vacation spent in the land of his youth and was especially pleased with the trip. Professor Beal was in the 77th year of a life which began January 9, 1840, at South Groton (now called Ayer), Middlesex County, Massachusetts. Professor Beal's father, J. Foster Beal, at various times was a school teacher, teacher of penmanship, overseer of the poor, foreman of a railroad construction gang and farmer. He died of tuberculosis when his son was about 8 years of age. The career of the boy subsequent to the death of his father, I quote from an incomplete biographical sketch left by Professor Beal. "It became evident, "he writes, "that in taking

[1] Professor Beal's given names in full are: Foster Ellenborough Lascelles.

care of my father in his last sickness, my mother had also contracted the disease and could not long survive. Her one thought was to provide for me. For this purpose she took me and visited Nathaniel C. Day of Lunenburg, Mass., who was her cousin once removed. He was a bachelor about 38 years of age and lived upon a farm where he kept a housekeeper and several hired men. He agreed to take care of me until I was of age. My mother left me the very day we arrived at the farm and I never saw her again alive. This was in early October, 1850, and she died the following December. I lived with Mr. Day on this farm for the next fourteen years. He had various housekeepers during the next three or four years but finally secured the services of Miss Harriet L. Gray. After she had worked for him for about a year, they were married. This lady took some interest in me and my tastes. I was a rather shy, quiet boy fond of reading and of nature. The other housekeepers and the hired men all thought this was nonsense. Mrs. Day, however, thought differently and encouraged me to get an education and make as much as possible of myself."

Here you will join me, I am certain, in saying "All honor to Harriet Day." Even that were weak praise for one who recognized the spark of intellectual power in this orphan boy, sheltered and aided it until it became a steady flame, past the danger of smothering or of being totally extinguished in the vitiated atmosphere of rustic indifference. We have Professor Beal's own words that he was "fond of nature" even in his early years. He has told me of some of his earliest memories relating to natural history: of finding a snake swallowing a frog; of watching a downy woodpecker drilling holes in an apple tree; and of being acquainted with all the flowers along the course he took the cattle to and from their pasturage. He loved nature, and when I tell you he was fortunate enough, in these early years to read Gilbert White's "Natural History of Selborne," you will understand he never could have slackened in this affection.

Continuing the account of his life in the Professor's own language (the period now being subsequent to his attaining majority): "During the ten years,[1] that I had been on the farm, I had been so

[1] Up to the time he was of age; it is believed he was formally apprenticed.

kindly treated by Mrs. Day, that having no other, I had come to look upon this as a home. So I remained working upon the farm of which I was now practically the foreman. My love of learning was such that, encouraged by Mrs. Day, I had demanded and obtained the privilege of attending several fall and spring terms at the Academy in Lunenberg, in addition to the regular winter term of the district school. In 1860 I attended the fall term of Lawrence Academy at Groton and was at school there when Abraham Lincoln was elected."

"In the turbulent times that followed his election and the secession of many of the southern states, I was very anxious to enlist in the Federal Army, but Mrs. Day always dissuaded me. After the disaster of our arms at Bull Run, I insisted that it was my duty to go and opposition was withdrawn. I enlisted in Company A of the 36th Massachusetts Regiment, recruited at Fitchburg, and went into camp at Worcester, Mass."

Professor Beal's regiment together with one from Maine was embarked on the transport Merrimac. One of the first entries in his diary[1] shows that his interest in natural history was irrepressible. On September 4, he notes "Last night I observed the phenomenon of the phosphorescence of the ocean." The regiment arrived at Alexandria, Va., September 6, and was transferred to Washington, D. C., the next day. Marching at intervals they reached Frederick, Md., September 18. At this period they could hear the cannon at the Battle of Antietam, and met prisoners and wounded men being taken to Washington. Professor Beal says "It was a ghastly sight. The pale drawn faces and bloody bandages made an impression that time has never effaced. It was a depressing introduction to the grim realities of war." The regiment proceeded to a point near Harper's Ferry where it was incorporated in a brigade and was reviewed by President Lincoln and Generals McClellan and Burnside on October 3. Professor Beal says "Saw all three of these worthies and took notes." After being marched about the country more or less aimlessly, Professor Beal was taken sick with chills and fever at Point of Rocks, Md., October 20. He was left behind and ordered to go to the Con-

[1] Professor Beal kept a diary during his Civil War experience and continuously from Jan. 1, 1864, until the day before his death.

valescents Camp at Harper's Ferry. He did so, and by November 10, after enduring considerable hardships, reached a similar camp at Alexandria, Va. Here the men lived in tents and looked after themselves, so they could hardly be said to be receiving treatment. On December 8, he says "the Doctor put his ear to my breast and then told me to go to the hospital." Nothing came of this order, however, and on December 29, while still in camp he was examined and recommended for a thirty day furlough. The furlough papers were not received until January 12. He left Washington the next day, reached New York and took a boat for New London. On the boat, he says "I took off my clothes for the first time in over four months and went to bed." On February 5, he was discharged from the service of the United States.

An epitome of Professor Beal's soldiering is: that he was subjected to unnecessary exposure, due to the unpreparedness of the nation in military ways, and fell a victim to the same disease that had taken both of his parents and was then discharged for disability. However, as the long subsequent course of his life attests, Professor Beal made a complete recovery.

After his discharge from the Army, the young man returned to life on the farm on which he grew up. He had a financial nest-egg derived from a small legacy from his mother's estate and wages received on the farm during the later years of his apprenticeship, and he now built a greenhouse and attempted to establish a market-gardening business. He was occupied with this and work on the farm from February, 1863, to December, 1865. Entries in his diaries show that study was not neglected during this period, and notes on birds and insects are frequent. It was at this time that he made the observations on the assembling of moths which he published several years afterward. On January 1, 1866, he began working as a gardener for a florist in Fitchburg, a position he held until the end of March, 1867. Evidently, it was at about this time that the idea of going to the Massachusetts Institute of Technology came to him. He visited Boston March 23, probably for a preliminary investigation, but he notes also that he visited the Natural History rooms — undoubtedly those of the Boston Society. From April to September, 1867, he lived with his foster-parents, the Days, at Leominster and prepared for the entrance examination to

the Institute. This he passed on October 5 and class work was begun October 7. At the end of his 1867 diary, he remarks "I have been sitting alone studying all the evening, thinking of the past and trying to look forward into the dark, misty future, and wondering what another year has of joy or sorrow, in store for me; but joy or sorrow it matters little which, a few short years and both will be as naught in the light of a higher and nobler future."

During the summer vacation of 1868, he superintended the outside work of prisoners of the Leominster jail, and at the end of the summer cared for his foster parents, both of whom were sick. Mrs. Day died in December, 1868, a great loss to the young man. Otherwise the school year of 1868–9 was uneventful. In the summer of 1869, he took a leisurely western trip by way of Chicago, Burlington, Iowa, up the Mississippi River to St. Paul, back to Prairie du Chien, Wis., Niagara Falls, N. Y., and home. Besides this, he made two short camping trips, one of them in New Hampshire. The next summer vacation was taken up by several similar outings. From the second year on, throughout his course, Professor Beal was President of his class. He was older than most of his classmates and evidently filled well the rôle of an elder brother. The Massachusetts Institute of Technology was young and when Professor Beal graduated in 1872, he was the oldest living graduate, a distinction which he naturally held the remainder of his life. During his third and fourth years at the Institute, he taught lower classmen, which sufficiently indicates that his record was a good one. The entry in his diary for March 17, 1870, is: "Delivered my first lecture today."

Professor Beal received his degree March 8, 1872, but continued school work until April 29 when he left for the West, his destination being Crete, Nebraska, where he began surveying for the Burlington and Missouri River Railroad, which is now known as the Chicago, Burlington and Quincy. This season in the prairies gave him an opportunity of studying nature under conditions entirely different from those in New England. From a sketch-book he kept at the time (and he was no mean artist), it is evident he was strongly impressed by the presence of antelope and of the abundant remains of the buffalo. This sketch-book contains pictures also of a horsefly, lubber grasshopper, milkweed butterfly, hog-nosed

snake, and other animals. Professor Beal often referred to his experiences on this trip; one reminiscence, in particular I remember, related to nighthawks. The birds immediately availed themselves of the newly-laid rails as perches, upon which, according to their custom, they sat lengthwise. They were so abundant, Professor Beal says, that he was certain there were enough nighthawks immediately along the right-of-way, to make a continuous row of the birds on both tracks clear across the state of Nebraska. The work on the railroad ended in November, and Professor returned to Boston.

The next year was spent in an attempt to establish a Civil Engineering business at Fitchburg; the field was limited however, and Professor began teaching again at the Institute of Technology in October, 1873. He taught there one school year, spent the next vacation in Boston and on camping trips, and proceeded October 5, 1874, to Annapolis, Md., where he had secured a position as Professor of Mathematics in the United States Naval Academy. The position was held only one year, but I imagine that this was not a serious disappointment to the Professor. The system of formal calls demanded by the naval social code, irked him considerably, and it is certain he would not have stayed indefinitely at the Naval Academy. During the spring of 1875 he actively collected natural history specimens around Annapolis, particularly birds, of which he mounted a number. He returned to Boston June 26. The following summer and winter were passed in Boston and Fitchburg and in short excursions in New England.

March 20, 1876, was an important date in Professor Beal's life, as it was then he started for Ames, Iowa, to take a position in the Agricultural College there; where he met the girl he was to marry and where he remained for the next seven years. After the first semester at Ames, he took an Eastern trip of about a month's duration, attending the Centennial Exposition at Philadelphia and visiting in Boston and Fitchburg. On his next visit to the east which began in November, 1876, he was married on his 37th birthday, January 9, 1877, to Mary Louise Barnes,[1] at Cortland, N. Y.

[1] Mrs. Beal was born at Bath, N. Y., July 22, 1844, and was educated in the Elmira Female College, and the Lyons Musical Academy. She has published two books for boys under the titles: "A Misunderstood Hero" and "Boys of Cloverdale." Professor Beal is survived also by a son Kenneth Foster Beal who was born March 20, 1880.

The newly married pair spent their honeymoon in Professor Beal's old haunts in Massachusetts and proceeded to Ames, Iowa, in March, 1877.

Professor Beal went to Ames as professor of civil engineering. On July 23, 1879, he notes, "heard my first class in Natural History" and on July 24, he was elected Professor of Zoölogy and Comparative Anatomy. In his 39th year, therefore, he finally was enabled to take up as a vocation what all his life had been his favorite avocation. The occasion must have been a happy one though possibly tinged with regret for the lost time. There is no doubt that Professor Beal took the course in Civil Engineering at the Institute of Technology chiefly because he did not know that a living could be made in Natural History. However, he was destined to work almost continuously in that field for the next 38 years, longer than most people are able to follow out any one line of endeavor.

During his stay at Ames, Professor Beal worked unceasingly at natural history problems; the long vacation in the midwinter was occupied largely in study of minute forms with the microscope, in research in comparative anatomy, and in collecting and mounting birds and mammals. He wrote numerous articles on the birds of Iowa which were published in Iowa newspapers, and sent a number of short contributions to the American Naturalist. It was at this period that his interest in the economic value of birds came to the fore; he examined the contents of birds' stomachs and his accounts of various species always contained some discussion of the food habits. Professor Beal's early studies of Economic Ornithology, thus were strictly contemporaneous with those of Professor S. A. Forbes of Illinois. These two are the founders of the scientific method of studying the economic value of birds. Professor Forbes dealt with the subject in a broad, philosophical way, but soon gave it up, while Professor Beal devoted himself practically for the remainder of his life to piling up detailed evidence, leaving the general principles to become apparent of themselves. In an article published while he was at Ames, Professor Beal gave the famous estimate that the tree sparrows of Iowa annually destroyed 196,000 bushels of weed seeds, which has been quoted hundreds of times, and which apparently will go on forever.

Perhaps, the greatest privilege enjoyed by Professor Beal at

Ames was association with intellectual men interested in the things that he had previously been compelled to study alone. Among these men were Charles E. Bessey, the botanist, Herbert Osborn, the entomologist, A. S. Welch, President and professor of philosophy, W. H. Wynn, Professor of English Literature, J. H. Macomber, Professor of Physics, T. E. Pope, Chemist, and Charles Aldrich, who like himself was interested chiefly in birds. A number of the professors including Professor Beal formed a dining club known as the Lamellibranchophagists. This organization no doubt was modeled after the contemporaneous New York Society called the Ichthyophagists, and Professor Beal was interested in the latter to the extent of sending a shipment of Iowa river mussels for trial at one of the dinners of the club.

During the last year he spent at Ames, 1882–83, Professor Beal gave courses in geology. In September of that year he went to Massachusetts and bought a farm near that on which he had grown up. Returning to Iowa he made all preparations to move the family and they were settled on the farm in December, 1883.

Here he remained for the next eight years, with the exceptions of a stay in Chicago, where he taught mathematics in the Manual Training School from January to June, inclusive, 1886, and in Washington where he held a temporary appointment in the Division of Economic Ornithology and Mammalogy from December 16, 1886, to June 30, 1887. Even when isolated from the intellectual world and occupied with the daily round of duties on his New England farm, Professor Beal did not give up his interest in scientific things. He lectured to the Grange and State Agricultural Association on various scientific subjects, and it is interesting to note, gave an address to the Lunenberg Farmers' Club on 'The Usefulness of Birds.' At this time he still wrote articles on birds for publication in the Iowa Homestead.

Professor Beal's second and permanent term of service in Washington began February 17, 1892, five years after his temporary appointment. Thereafter he worked for the Biological Survey continuously for more than twenty-four years, making a total of about twenty-five years spent in professional pursuit of the science of Economic Ornithology. During his short period of service in 1886–7, Professor Beal spent his time in making digests of answers

to questionnaires on the rice-bird or bobolink and on the English sparrow. He also studied the distribution of the latter species and prepared the range map published in Bulletin 1, 1889. Up to the time of Professor Beal's second appointment, the Biological Survey had not succeeded in finding a man to carry on systematically the examination of bird stomachs. Professor Beal proved to be the best possible choice as he threw himself immediately at the task, and except for intervals spent in field work and in preparing reports, kept steadily at it throughout his career. To what purpose he labored may be judged by the results. The grand total of bird stomachs examined by Professor Beal for the Biological Survey is 37,825, an average of more than 1500 per year. This enormous number includes birds of almost all families, but Professor Beal paid particular attention to the woodpeckers, the Icteridæ, cuckoos, flycatchers, thrushes, and swallows, upon all of which he wrote reports. He made a study also of the mockers, wrens, thrashers, titmice, creepers, nuthatches, and kinglets, but did not report upon them.

Professor Beal performed five pieces of field work for the Biological Survey; he collected material for the reference collections, and studied the feeding habits of birds, particularly nestlings, in Massachusetts, from June 11 to September 14, 1898. From May 22 to September 22, 1901, and from February 16 to October 1, 1903, and April 6 to December 11, 1906, he worked in California. From July 7 to November 25, 1909, he investigated birds in Washington, Oregon, and California. The results of the first three California trips are embodied in two 100-page bulletins on Birds of California in Relation to the Fruit Industry. Professor Beal was sole author of 20 publications of the Biological Survey, one of which — 'The Swallows, a Family of Valuable Native Birds' — has not yet been issued. He collaborated on four other bulletins, treating in a popular way, the economic value of a large number of common birds. His Farmers' Bulletin entitled 'Some Common Birds in Their Relation to Agriculture (F. B. 54, 1897, revised 1904, rewritten as F. B. 630, 1915) has been reprinted more than 50 times and over a million copies distributed. It has had the largest circulation of any Biological Survey publication, and probably indeed of any publication on American Ornithology.

On the basis of his work in Economic Ornithology, Professor Beal must be given a large share of credit for the progress that bird protection has made in the United States, and we have the most advanced laws in existence. He did more than any other man to reveal the basic facts that were needed to convince the so-called "practical" men of the value of bird protection. He often referred to the Audubon Societies as the army, fighting for bird protection, but, he said, we furnish the ammunition.

His non-official publications included ten short articles in the 'American Naturalist,' and 'Forest and Stream,' numerous newspaper articles, mainly in the 'Iowa Homestead' and 'Iowa State Register,' and a few others in 'The Auk,' 'Science,' etc., and most important of all, his paper on "Birds as Conservators of the Forest" in the 'Report of the New York Forest, Fish and Game Commission' for 1902 and 1903.

Professor Beal also diffused knowledge of Economic Ornithology, to a certain extent, by lecturing. He read a paper on the food habits of birds at Carlin Springs, Va., in 1895, before the State Horticultural Society of New Jersey, and the Eastern New York Horticultural Society in 1899, and the California Academy of Sciences in 1901. He gave shorter talks on the same subject at meetings of the Fitchburg Grange, Potomac Valley Ornithological Club, Biological Society of Washington and Cooper Ornithological Club.

Professor Beal's connection with the American Ornithologist's Union dates from 1883 when he was elected an active member. This membership was allowed to lapse, however, and he was re-elected in 1887 and made a fellow in 1901. He attended nine meetings of the Union as follows: 1892 and 1895, Washington; 1896, Cambridge; 1898 and 1902, Washington; 1903, Philadelphia; 1903, San Francisco; and 1910 and 1914, Washington. At the 1898 meeting, he read a paper on "Polygamy among Oscines."

Professor Beal was a member also of the Cooper Ornithological Club, being transferred to the honorary roll in 1910, and of the Biological Society of Washington. He was one of the organizers of the Potomac Valley Ornithological Club (December 22, 1892) of which he was elected vice-president, January 16, 1893. This organization was short-lived, its activities merging into those of

the Biological Society of Washington. Professor Beal, however, never tired of referring to one feature connected with its organization, that being, the perfection of the Constitution and By-Laws of the Club. Frank Hitchcock, then a member of the Biological Survey, later Postmaster General of the United States was on the Committee, and his persistence in pointing out ambiguities of language and dangers of misinterpretation, resulted in giving his fellow committeemen several evenings of stiff work on a document which they, otherwise, probably would have completed at one sitting. All were agreed, however, that the finished product was strictly iron-clad, and a veritable model of its kind.

Professor Beal was a member also at one time of the Iowa Academy of Sciences, and for many years of the Massachusetts State Grange.

Having thus sketched the career of Professor Beal, it remains to appraise it. In estimating the results of his life, we must not forget the early disadvantages: his being orphaned, his struggle for an education, the comparative lack of encouragement, and total absence of advisors qualified to help him choose a career. Yet the ambition and determination were there, and although most things came to him unusually late in life, he patiently forged ahead. Taking his life as a whole, the guiding star was love of nature. It was in him early and the 'Natural History of Selborne' fixed it. Like I know not how many of us, he was also inspired by the writings of Hugh Miller. 'The Testimony of the Rocks,' and 'The Old Red Sandstone,' fired him with a zeal to collect fossils, but the metamorphic rocks about his early home yielded not one. It was not until he went to Iowa, as a teacher, that he saw fossils, and then he found them everywhere. They were in the sidewalks, in the building stones and even the roads were paved with broken crinoids; what a reward it was for his years of waiting! Professor Beal was a florist by profession and by choice; he never gave up working with flowers and he died among them. Hardly one of his diaries but was used to preserve small specimens of plants in which he was interested.

Professor had the enviable experience of spending a day in a field excursion led by Louis Agassiz, and he never ceased to refer to it with the greatest pleasure. He was always an interested

listener to the natural history experience of others, and from the enthusiasm he showed and care he took in conveying information asked for, I have no doubt he was an excellent teacher. Further evidence of this is his assertion that teaching was the hardest work he ever did.

In reviewing Professor Beal's career, an unusual handicap under which he labored must not be forgotten. For the greater part of his life he was subject to serious nose-bleeding and to violent sick-headaches. For many years, at least one day in seven, saw him incapacitated for duty. It is not surprising, therefore, that at times he manifested a tendency toward the blues. This did not interfere, however, with the development of a keen sense of humor. He greatly appreciated a good story and never lacked a better one to cap it.

Despite the presumption that he should have inherited a weak constitution from his parents, and the fact that his vitality was subjected to the severe strains above-noted, physically, Professor Beal was a marvel. Up to his 70th year he was equal to another man in his prime. At that period he took all day tramps with me, leaped over brooks and vaulted fences with ease. Symptoms appearing subsequently, and which probably were the first warnings of *angina pectoris*, together with the advice of doctors, caused him to adopt as a matter of policy, a less strenuous life. Nevertheless, he rendered full service to the Biological Survey, up to the very day of his death, besides overseeing and personally doing much of the work required to keep going a 3-acre flower, truck, and chicken farm. Bodily, he failed a little, and his memory for some things became impaired, but these changes were noted only by those who had known him long. In no sense of the word could he have been called feeble. He was indeed a grand old man and was so recognized by everyone.

Professor Beal held vigorous views and before he adopted the more staid behavior of an elderly man, was prone to express himself freely when occasion arose. He grew really eloquent at such times and often I have felt thrilled at the power of his thought and speech.

Professor was not a religious man but his life was as blameless as if it had been guided by the most perfect religion. I believe I

am absolutely correct in saying that in his relations to other people, Professor Beal was always in the right. That is a great deal to say; it means devotion to — nay it means more — means living the Golden Rule. Yet my calm judgment is that he succeeded in doing just that.

It is unnecessary, therefore, to add that he won the admiration and affection of all who became acquainted with him. Fortunately, his was not a case in which expression of these sentiments was deferred until after death. On his 70th birthday, the staff of the Biological Survey united in congratulating him and in presenting him with a loving cup. Dinners or luncheons were tendered him on all of his recent birthdays, and the occasion of his 75th, January 9, 1915, is thus recorded in his diary. "The boys took me to Harvey's and stuffed me with oysters, and then presented me with a beautiful piece of cut glass."

As noted at the outset, Professor Beal was in his 77th year. In all probability, therefore, death could not have been long deferred. Is it not much better, then, that it came before there was marked impairment either physical or mental? Certainly that is the way it appears to me, and the conviction that all was for the best for him, checks the feeling of sadness, which, after all is selfish in origin. Our nobler impulses prompt us only to high appreciation of his long career so honorable and useful, of a most admirable growing old, and of a passing that was really enviable. Professor Beal lived the life of a man, unafraid, and was fortunate enough to die in the harness. Our memories of him, therefore, can only be of one well and vigorous, alert of mind, a hard worker and a good companion. If all lives were as productive and all natures so open and honest, it would indeed be a better world.

Bibliography.

Much of Professor Beal's earlier writing was published in newspapers, and is practically lost. In a scrap-book kept by the Professor are clippings of the newspaper articles hereunder listed, exact references to which are lacking. Most of the sketches were published in the Iowa State Register and in an editorial note included

with them, we are informed that they appeared in the Sunday editions of that journal. The Editor further states with reference to the articles: "They are by Professor Beal of the chair of Zoology in the State Agricultural College, and we consider them, modest as they are, to have decided merit. No one who has intelligent sympathy with the charming little world of bird life, can begin to read one of the articles without finishing it. . . . . Several of our most intelligent and critical readers tell us they are charmed with them and that all the articles . . . . have gone into their scrap-books." In a letter to the editor sent from Webster City, Iowa, probably by Charles Aldrich, is high praise of Professor Beal's writing. "He is master of a bright, lively, piquant style of writing and is never dull and prosy. He reminds us of Dr. Elliott Coues, and that is praise enough to award any writer on birds."

Following is a short extract from one of the sketches to illustrate Professor Beal's style. The subject — The Catbird — is one that inspired Coues also to some of his finest passages.

"There is nothing, unless it be the ubiquitous birch, more closely associated with school days in the recollections of the New England country boy, than the catbird. He always declares that he *hates* a catbird, but there are few of his surroundings with which he would more unwillingly part. The fun of stoning one of these birds is a joy not to be lightly given up and the best part of it is the bird seems to enjoy it as well as the boy, and it is certain that there results no harm to the former while the latter has all the fatigue. Down in the elder thicket by the brookside, when the boy goes to cut a stick of elder to make a pop-gun with which to enliven the dreary hours of school, the catbird meets him and taunts him with a long drawn m-i-a-u. Fired with rage at this insult he hurls stone after stone with no other effect than to put himself in a heat and waste his hour of nooning, till at last he is late to school, for which he is punished; then, while attempting to make his pop-gun during school time, he is detected, his elder and his dearly beloved jack-knife both confiscated, and he sent in disgrace to sit among the girls for the rest of the afternoon; and all because of that catbird upon whom he vows revenge."

Probably most of the articles were printed during 1876–1883 inclusive, the period of Professor Beal's residence in Iowa, but in

his diaries I find mention of articles being sent to the Iowa State Register as late as 1893. It is practically certain that a number of newspaper contributions by Professor Beal are entirely buried. For instance his diaries mention articles being sent to the Guide and the Tribune about which nothing further is known.

Most of the known sketches appeared in the Iowa State Register; these are listed below in the order in which they are arranged in Professor Beal's scrap-book.

From the Iowa State Register.

The House Wren (Troglodites aedon).

Description of habits, especially as to choice of nesting site and amount and kind of food consumed.

The Swallows.

General and food habits of 4 species.

The Woodpeckers.

Use of their nest cavities by other birds; general notes on habits and food.

The Sparrows.

General remarks on composition and habits of group; destruction of weed seeds.

The Nuthatch and His Friends.

General notes on the White-breasted Nuthatch, Chickadee, Brown Creeper, Downy Woodpecker, and Ruby-crowned Kinglet; value of their services in destroying insects.

The Blue Jay (Cyanurus cristatus).

General discussion of habits opposing the popular opinion prejudicial to the bird.

The Baltimore Oriole (Icterus Baltimore).

Comment on colors, nest, and food habits.

Iowa Birds. The Purple Grackle (Quiscalus purpureus).

Habits and economic value.

Iowa Birds. The Catbird (Mimus carolinensis).

General habits and summary of food.

Birds of Iowa. The Shrike or Butcher Bird. (Lanius borealis).

General habits and food.

Secrets of Bird Life. The Robin (Zurdus migratorius). [sic.]

General habits and food.

The Birds of Iowa. The Bluebird (Sialia sialis).

General habits and food.

The Birds of Iowa. The Fly Catcher.

The habits and economic value of the Kingbird and Phœbe.

The Birds of Iowa. The Bobolink (Dolichonyx oryzivorzzs).

A vivid account of the birds habits, with remarks upon food.

The Birds of Iowa. The Meadow Lark (Sturnella magna).
General habits and food.
The Birds of Iowa. The Swifts (Choetura pelasgia).
Habits; only general remarks on food.
The Birds of Iowa. The Little Screech Owl (Scops asio).
Description of notes, the color phases, food habits, comment on a captive.
The Birds of Iowa. The Horned Lark.
Notes on habits and value as destroyers of weed seeds.
Rose-breasted Grosbeak. (Goniaphea ludoviciana).
Description of plumage, habits, and particularly of relations to potato beetles.
The Birds of Iowa. Brown Thrush (Harporhynchus rufus).
Song, habits, and food.
Game-shooting in Iowa. A suggestion as to the farmers and gentlemen sportsmen.
Suggestions for curing trespass abuses.
Our Iowa Winter Birds.
A general account of the winter avifauna; notes on food habits.
The Birds of Iowa. The Crow (Corvus frugivorus).
General and unfavorable account of the habits.
Place of Publication Unknown, Probably the Register.
The English Sparrow.
Unfavorable account.
Usefulness of the Seed-eating Birds.
Fringillidæ and Horned Lark.
From the Iowa Homestead.
The Marsh Wren.
Notes on the false nests, and song.
A Chapter on Snakes.
A popular account of the structure and habits.
About Bats.
Structure contrasted with that of birds; habits.
From the Chicago Herald.
How Farmers Should Treat the Birds.
Protect them, furnish nesting sites, and nest boxes.

Prof. Beal's other publications follow in chronological order.

"Assembling" among Moths. Am. Nat. 8, No. 4, April, 1874, pp. 234–236.
Males of Prometheus moth attracted to vicinity of female cocoon.
(Report of the Professor of Civil Engineering) 7th Biennial Rep. Board of Trustees, Iowa Agr. Coll. (1876–7), 1877, pp. 90–93.
Limited Appropriations Needed from the State. By Budd, J. L. and

Beal, F. E. L. 7th Biennial Rep. Board of Trustees, Iowa Agr. Coll. (1876–7), 1877, pp. 121–125.

Relates to roads, garden, and sewer.

Birds' Nests in Unusual Places. Forest & Stream 10, No. 7, March 21, 1878, p. 118.

Robin's nest on ground.

Our Most Useful Birds. Trans. Iowa State Hort. Soc. 1878, pp. 350–355, 1879.

This article contains the original estimate of the quantity of weed seeds destroyed by winter birds in Iowa: 196,537 bushels. In various forms this statement still has constant currency in the press.

Report of the School of Biology. By Bessey, C. E. and Beal, F. E. L. 8th Biennial Rep. Board of Trustees, Iowa Agr. Coll. (1878–9), 1879, pp. 188–190.

Report of the School of Civil Engineering. 8th Biennial Rep. Board of Trustees, Iowa Agr. Coll. (1878–9), 1879, pp. 195–6.

Sandie. The College Quarterly, Iowa Agr. Coll., Ames, 2, No. 2, July, 1879, pp. 45–47.

Account of a tame sandhill crane; notes on food.

The Northern Waxwing in Iowa. Forest & Stream 13, No. 22, Jan. 1, 1880, p. 947.

Occurrence at Ames, Nov., 1879.

The Potato Bug Bird Again. Forest & Stream 13, No. 25, Jan. 22, 1880, p. 1005.

Rose-breasted Grosbeak eating potato beetles.

Greenhouses. The College Quarterly, Iowa Agr. Coll., Ames, 3, No. 2, July, 1880, pp. 32–33.

Tardigrades and Eggs. Am. Nat. 14, No. 8, Aug., 1880, pp. 593–594, 3 figs.

Eggs laid in shed skin.

Report of the Department of Civil Engineering. 9th Biennial Rep. Board of Trustees, Iowa Agr. Coll. (1880–81), 1881, pp. 45–46.

Report of the Department of Zoology. 9th Biennial Rep. Board of Trustees, Iowa Agr. Coll. (1880–81), 1881, pp. 47–48.

"During the past year one young lady student had made a special study of birds, in relation to their food habits, and has ascertained some important facts," p. 48.

This young lady was Miss M. J. Crossmun, the results of whose studies were published in an article entitled "Food of Birds" in Trans. Iowa State Hort. Soc. for 1881 (1882), pp. 264–276. A brief introduction is by Professor Beal. Data obtained from stomach examination are given for the Bluejay, Cuckoo, Baltimore Oriole, Kingbird, Robin, Catbird Brown Thrasher, White-throated Sparrow, and Crow Blackbird. In the last instance the information based on 44 stomach analyses is presented in considerable detail.

Migrations of the Sand-hill Crane. Am. Nat. XV, No. 2, Feb., 1881, pp. 141–142.

Drifting backward before wind.

A Shower of Cyclops quadricornis. Am. Nat. XV, No. 9, Sept., 1881, pp. 736–737.

A "blood rain" in Henry County, Iowa.

Does the Crow Blackbird eat Crayfish? Am. Nat. XV, No. 11, Nov., 1881, pp. 904–905.

Gastroliths found in stomachs probably picked up as grinding material.

Ampelis cedrorum as a Sap-sucker. Bull. Nutt. Orn. Club., 7, No. 1, Jan. 1882, p. 54.

Taking sap flowing from broken twigs.

Nesting Habits of the Horned Lark. Am. Nat. 16, No. 3, March, 1882, pp. 240–241.

In very early spring.

Report of Committee on Ornithology. Trans. Iowa State Hort. Soc. for 1882, pp. 289–301, 1883.

An account of the habits and usefulness of the family of woodpeckers in general and of 7 Iowa species in particular.

Twigs Killed by Telephone Wires. Am. Nat. 20, No. 9, Sept., 1886, pp. 806–7.

Some Notes on Bird Migrations. Am. Nat. 20, No. 9, Sept., 1886, pp. 817–819.

Woodpeckers in Chicago; birds killed at lighted tower.

Food Habits of the Cedar Bird (Ampelis cedrorum). Annual Report, U. S. Dept. of Agr., 1892, pp. 197–200.

Report upon the examination of 125 stomachs.

The Crow Blackbirds and Their Food. Yearbook, U. S. Dept. of Agriculture 1894, pp. 233–248, fig. 25.

This is the most authoritative account of the food of any species of bird, being based upon the examination of 2,258 stomach contents.

The Food and Tongues of Woodpeckers. Biological Survey Bulletin 7, 44 pp. 5 pls., 1895. Preliminary report on the food of woodpeckers (pp. 7–33, 1 pl. frontispiece, figs. 1–4).

Formal reports on the food habits of 7 species of woodpeckers and brief notes upon 3 others are given.

The Meadow Lark and Baltimore Oriole. Yearbook U. S. Dept. of Agriculture, 1895, pp. 419–430, figs. 110–111.

The food habits of both species are fully discussed, and the verdict in each case is in favor of the bird.

A Demand for English Names. Auk, 12, No. 2, April, 1895, pp. 192–194.

Cites popular use of scientific names, and impracticability of making to order common names.

Busy Bird Architects. The Marsh Wren and his Fondness for Constructing Nests. Washington, D. C., Evening Star, July 6, 1895.

The Bluejay and its Food. Yearbook U. S. Dept. of Agriculture 1896, pp. 197–206, figs. 40–42.

This is a complete discussion of the range, habits, and economic value of the bluejay. Details are given as to the insect and vegetable food, and experiments to determine preferences of a captive jay are described.

Food of the European Rook (Corvus frugilegus). Science N. S. 3, pp. 918–919, June 26, 1896.

Review of paper by M. Hollrung.

Birds that Injure Grain, Yearbook U. S. Dept. of Agriculture, 1897, pp. 345–354.

Professor Beal discusses the cause of the increase in numbers of the principal grain-eating birds, outlines the damage done, and gives somewhat extended accounts of the food habits of 5 species, particularly in relation to grain. Four other species are briefly mentioned.

Recent Investigations of the Food of European Birds. Auk 14, No. 1, Jan. 1897, pp. 8–14.

Review of John Gilmour's article on rook, starling, and wood-pigeon, M. Hollrung on rook, and comparison of food-habits of rook with those of American crow.

Some Common Birds in their Relation to Agriculture. Farmers' Bulletin 54, 40 pp. 22 figs. May, 1897. Revised edition. 48 pp. 22 figs., March, 1904.

See discussion under Farmers' Bulletin 630, 1915.

Cuckoos and Shrikes in their Relation to Agriculture. Biological Survey Bulletin 9, 26 pp. 1 pl. 1 fig. 1898. The food of cuckoos (pp. 7–14, fig. 1).

After noting briefly the general habits of the Yellow-billed and Black-billed Cuckoos, this bulletin treats their food habits collectively.

Some of the Economic Relations of Birds and their Food. Proc. 24th Ann. Session N. J. State Hort. Soc., Jan., 1899, pp. 104–129.

The Feeding Habits of the Chipping Sparrow and the Winter Food of the Chickadee. Bird-Lore 1, No. 3, June, 1899, pp. 97–98.

Review of 2 papers by Clarence M. Weed.

[Review]. Bird-Lore 1, No. 4, Aug., 1899, pp. 133–4.

Review of an article entitled "Birds" by Annie M. Grant and of "The Birds of Ontario in relation to Agriculture by Chas. W. Nash."

Food of the Bobolink, Blackbirds, and Grackles. Biological Survey Bulletin 13, 77 pp. 1 pl. (map). 6 figs. 1900.

This bulletin contains formal reports on the food habits of the Bobolink, the Cowbird, and 7 species of blackbirds. Tabulations of the principal food items, by months, follow the general account of each species, and diagrams graphically conveying the same information are given for the Bobolink, Cowbird, and Red-winged Blackbird.

How Birds Affect the Orchard. Yearbook U. S. Dept. of Agriculture, 1900, pp. 291–304, figs. 34–38.

Birds affect orchards directly by stealing fruit, feeding upon buds, flowers, or the inner bark and sap of the trees, and indirectly by destroying mammals and insects injurious to orchards. This article gives brief accounts of the birds most important in these relations.

Remarks on Economic Value of Nighthawks. Educational Leaflet No. 1, Nat. Comm. Audubon Soc., Jan. 1, 1903, pp. [2–4].

The Relation of Birds to Fruit Growing in California. Yearbook U. S. Dept. of Agriculture 1904, pp. 241–254.

Most of this article is devoted to the discussion of the species injurious to fruit, but some of the chief enemies of fruit pests are briefly mentioned.

Birds as Conservators of the Forest. Rep. New York Fish and Game Commission 1902–3 (Nov., 1906), pp. 236–274, 2 figs., 14 colored plates.

A fresh and important discussion of the birds that have especial relation to forests.

Birds of California in Relation to the Fruit Industry. Part I. Biological Survey Bulletin 30, 100 pp. 5 pls. (1 colored), Nov. 11, 1907.

The food habits of 35 species are fully discussed, including the most important species from the tanagers to the thrushes, in systematic order, together with the linnet, or house finch, the worst fruit pest among the birds in the State. The account of this species is based upon the examination of 1,206 stomachs.

The Relations Between Birds and Insects. Yearbook U. S. Dept. of Agriculture, 1908, pp. 343–350.

The principal points made in this paper are that birds are a very important check upon insects and that their true function is not so much to destroy this or that insect pest as it is to lessen the numbers of the insect tribe as a whole.

Birds of California in Relation to the Fruit Industry. Part II. Biological Survey Bulletin 34, 96 pp. 6 colored pls. Aug. 8, 1910.

A continuation of Bulletin 30, dealing with 32 species of birds, in the families Tetraonidae to Fringillidæ inclusive. The conclusion is stated that only four species of birds common in California, can be regarded of doubtful utility. These are the house finch, California jay, Steller jay and red-breasted sapsucker.

Food of the Woodpeckers of the United States. Biological Survey Bulletin 37, 64 pp. 6 pls. (5 colored), 3 figs. May 24, 1911.

The accumulation of woodpecker stomachs in the 16 years since the publication of Bulletin 7 enabled Professor Beal to present in Bulletin 37 formal reports on the food habits of 16 species, 9 more than were treated in the preliminary report. Brief notes upon the food of 6 other species also are included; the food of 11 species of woodpeckers which were not even mentioned in Bulletin 7 is discussed.

Our Meadowlarks in Relation to Agriculture. Yearbook U. S. Dept. of Agriculture, 1912, pp. 321–324.

In this treatise the two North American species of meadowlarks are considered together, as their habits and food are practically identical. In

the laboratory 1,514 stomachs were examined, and the birds proved to be mainly insectivorous, with their vegetable food (22.78 per cent) taken mostly in the winter months. The author concludes that the meadowlarks are ordinarily very beneficial, but under certain local conditions, may do appreciable damage, principally to grain.

Some Common Game, Aquatic, and Rapacious Birds in Relation to Man. By W. L. McAtee and F. E. L. Beal. Farmers' Bulletin 497, pp. 30, figs. 14, May 6, 1912.

This bulletin contains brief accounts of the food and economic status of 19 birds of which those on the California Quail and Franklin's Gull were prepared by Professor Beal.

The Nighthawk. Educational Leaflet No. 1 (2nd ed.), Nat. Assoc. Audubon Soc., pp. 1–4, 1 pl., 2 figs., July 1, 1912.

Entirely revised from original edition of 1903.

The Tree Sparrow. Educational Leaflet No. 16, Nat. Assoc. Audubon Soc., 4 pp., 1 pl., 1 fig., July 1, 1912.

Food of Our More Important Flycatchers. Biological Survey Bulletin 44, pp. 67, pls. 5 (4 colored), Sept. 19, 1912.

This is a formal report on the food of 17 species of our flycatchers based upon examination of 3,398 stomachs.

Food of Some Well-known Birds of Forest, Farm, and Garden. By F. E. L. Beal and W. L. McAtee. Farmers' Bulletin 506, pp. 35, figs. 16, September 25, 1912.

The food and economic status of twenty species of birds are briefly discussed. Accounts of the following were prepared by Professor Beal: Arctic Three-toed Woodpecker, American Three-toed Woodpecker, California Woodpecker, Lewis Woodpecker, Red-bellied Woodpecker, Ruby-throated Hummingbird, Anna's Hummingbird, Arkansas Kingbird, Ash-throated Flycatcher, Western Flycatcher, Chipping Sparrow, Junco, White-crowned Sparrow, Southern Butcher-bird, Audubon Warbler, and Ruby-crowned Kinglet.

Fifty Common Birds of Farm and Orchard. By various members of the Biological Survey. Farmers' Bulletin 513, 31 pp., 50 colored figures, 1913.

The separate accounts of birds prepared by Professor Beal are those on the Bluebird, Robin, Russet-backed Thrush, Ruby-crowned Kinglet, Chickadee, White-breasted Nuthatch, Brown Creeper, House Wren, Myrtle Warbler, Loggerhead Shrike, Barn Swallow, Purple Martin, Song Sparrow, Chipping Sparrow, White-crowned Sparrow, Crow Blackbird, Brewer's Blackbird, Bullock's Oriole, Meadowlark, Red-winged Blackbird, Bobolink, Arkansas Kingbird, Kingbird, Flicker, Downy Woodpecker, and Yellow-billed Cuckoo.

Food of the Robins and Bluebirds of the United States. Department Bulletin 171, pp. 31, figs. 2, February 5, 1915.

This bulletin consists of formal reports on the food of our five species of Robins and Bluebirds, of which a total of 2,432 stomachs were examined.

Some Common Birds Useful to the Farmer. Farmers' Bulletin 630, pp. 27, figs. 23, February 13, 1915.

In this bulletin are discussed the food habits of 59 species of birds. The bulletin was prepared to take the place of Farmers' Bulletin 54 originally issued in 1897 which contains summaries of the food habits of 28 species and brief references to the nature of the food of 8 others. The revised edition (1904) contains 40 specific summaries and notes on 14 species. Farmers' Bulletin 630 is the one article on bird food to have if the complete series of bulletins and other publications of the Biological Survey is inaccessible. Many of the food summaries, though brief, are important, being based on the examination of large numbers of stomachs.

Farmers' Bulletin 630 and its forerunners have been reprinted more than 50 times and a total of over a million copies have been distributed.

Food Habits of the Thrushes of the United States. Department Bulletin 280, pp. 23, figs. 2, September 27, 1915.

Bulletin 280 is a formal report on the food of the thrushes, other than the robins and bluebirds, of the United States. There are six species plus subspecies of three and a total of 1,453 stomachs were examined.

The Bird's Impulse to Song. Country Life (London), 39, p. 520, April 22, 1916.

In response to a letter about the singing of birds along the battle line in France. Professor Beal shows that various forms of excitement are apt to inspire song.

Common Birds of Southeastern United States in Relation to Agriculture. By F. E. L. Beal, W. L. McAtee, and E. R. Kalmbach. Farmers' Bulletin 755, 39 spp., 20 figs., Oct. 26, 1916.

The accounts of the food habits of 13 of the 23 species treated were prepared by Professor Beal.

The Swallows, a Family of Valuable Native Birds. Bulletin No. — U. S. Department of Agriculture, 191–.

1. NEST OF WILSON'S WARBLER.
2. NEST OF PHILADELPHIA VIREO.

SOME SUMMER BIRDS OF NORTHERN NEW BRUNSWICK.

BY P. B. PHILIPP AND B. S. BOWDISH.

Plates VII–IX.

Northumberland Co.

DURING the past summer the authors made a second reconnoissance of the region in northern New Brunswick covered by the previous year's study of the breeding of the Tennessee Warbler, which was described in 'The Auk' for January, 1916. The period embraced by this study in 1915, was from June 18 to July 2; that in 1916 from June 2 to 27.

The nature of the country visited, having been described in the above mentioned paper, repetition of that description is unnecessary. An annotated list of the birds noted follows:

Gavia immer. LOON.— Frequently noted. Doubtless breeds.

Larus marinus. GREAT BLACK-BACKED GULL.— A number noted.

Larus argentatus. HERRING GULL.— Common and doubtless breeds.

Sterna hirundo. COMMON TERN.— Abundant. Breeds.

Phalacrocorax auritus auritus. DOUBLE-CRESTED CORMORANT.— A few noted.

Mergus serrator. RED-BREASTED MERGANSER.— Abundant. Breeds.

Anas rubripes. BLACK DUCK.— Common. Breeds.

Marila marila. SCAUP DUCK.— Breeds sparingly. A few seen throughout our stay, both years, and a parent with brood of small young noted, June 19, 1915.

Branta bernicla glaucogastra. BRANT.— Two flocks of at least sixty each noted June 3, 1916.

Botaurus lentiginosus. BITTERN.— A few scattering birds seen and heard during 1916 visit.

Ardea herodias herodias. GREAT BLUE HERON.— One noted July 1, 1915.

Gallinago delicata. WILSON'S SNIPE.— On June 15, 1916, we saw a pair of these birds whose actions gave all the indications of nesting. Under the same conditions, they were noted on several later occasions. The situation was boggy ground of excellent character for the breeding of these birds, but no nest was discovered.

Totanus melanoleucus. GREATER YELLOW-LEGS.— A few noted with Black-bellied Plover, June 4, 1916.

Actitis macularia. SPOTTED SANDPIPER.— Fairly abundant breeder.

Squatarola squatarola. BLACK-BELLIED PLOVER.— A flock of twelve

or fifteen noted on the day of our arrival, June 2, 1916, and for several days thereafter.

Ægialitis meloda. PIPING PLOVER.— June 5 we found a small colony of breeding birds, five nests, each containing four eggs, being located. The nests were on sandy beach, some in the open, others among sparse clumps of beach grass. They were slight hollows in the sand, some quite unlined, others with a well formed rim of bits of broken shell or slate. The sitting birds usually flushed before they were seen, while the intruder was at a distance of a hundred feet, or more, and, sneaking quietly away, gave no clue to the whereabouts of the nest. If concealment offered, and one observer remained hidden, while the other walked away, the parent bird soon returned to the nest. In most instances incubation was well advanced.

Bonasa umbellus togata. CANADIAN RUFFED GROUSE.— Common breeding bird. On June 16, 1916, a parent with brood of recently hatched young was observed, and others were noted with young on various occasions during both visits.

Accipiter velox. SHARP-SHINNED HAWK.— One noted June 10, 1916.

Haliæetus leucocephalus leucocephalus. BALD EAGLE.— Common. Breeds.

Pandion haliaetus carolinensis. OSPREY.— One seen June 12, 1916.

Asio flammeus. SHORT-EARED OWL.— June 19, 1915, we found two nests of these birds, each containing five young, in varying stages of development, the largest being nearly a third grown, the smallest not appearing to be over a week old. In 1916 no birds were seen in the same locality.

Ceryle alcyon alcyon. BELTED KINGFISHER.— Abundant breeding bird.

Dryobates villosus leucomelas. NORTHERN HAIRY WOODPECKER.— A few noted in both visits. A nest with young observed early in June, 1914.

Dryobates pubescens medianus. DOWNY WOODPECKER.— Apparently breeds sparingly. Nest with young noted June 14, 1916.

Picoides arcticus. ARCTIC THREE-TOED WOODPECKER.— June 24, 1915, we found a nest of this species about ten feet up in a hard, bare, dead snag, in a partial clearing. It contained young still too small to appear at the entrance. June 10, 1916, another nest was located, some twenty feet from the ground, in a dead yellow birch, in partial clearing. This nest also contained young, which had left it by the 14th.

Picoides americanus americanus. THREE-TOED WOODPECKER.— One seen June 21, 1916.

Sphyrapicus varius varius. YELLOW-BELLIED SAPSUCKER.— Common breeding bird. June 7, 1916, one nest contained five fresh eggs, another five well incubated eggs, and of three other occupied nests, which were not investigated, one appeared to have young. On the 9th, another nest held five fresh eggs. Another nest, found on the 14th, evidently contained young as we could plainly hear them. The favorite situation was the dead heart of a live poplar, most often on the bank of a stream, and

facing same, but some nests were in totally dead trees, of different kinds. They ranged from eight to forty feet from ground.

Phlœotomus pileatus abieticola. NORTHERN PILEATED WOODPECKER.— One noted June 12, 1916.

Colaptes auratus luteus. FLICKER.— Fairly common. Breeds.

Antrostomus vociferus vociferus. WHIP-POOR-WILL.— Several heard.

Chordeiles virginianus virginianus. NIGHTHAWK.— Very common. Breeds. One found sitting on two nearly fresh eggs, June 21, 1916.

Chætura pelagica. CHIMNEY SWIFT. A few noted.

Tyrannus tyrannus. KINGBIRD. Several noted.

Nuttallornis borealis. OLIVE-SIDED FLYCATCHER. Frequently noted on both visits.

Empidonax flaviventris. YELLOW-BELLIED FLYCATCHER. Fairly common. A nest found with one egg on June 21, 1916, on the 24th, contained three eggs, on which the bird was sitting quite closely. It was built on the ground in the side of a large tussock of moss on which grew a scant covering of low sheep laurel bushes. The nesting site was an extensive, fairly open tamarack and spruce bog, and the tussock selected for the nest was a few yards from the edge of the thick spruce forest surrounding the bog. The nest was quite open and was a firmly built structure well cupped, composed of a thick foundation of dead fine grass with a few sphagnum moss fronds, well lined with fine dried grasses and some species of fine black rootlets. The three eggs were fresh and measured .69 × .52, .65 × .52, .66 × 52. The nest measured, outside diameter 3 inches, inside diameter 1½ inches; outside depth, 2 inches, inside depth 1½ inches. The eggs are typical flycatcher eggs and cannot be mistaken for those of any of the small ground nesting warblers, and are of a white ground color, sparsely spotted, chiefly at the larger end, with fine reddish brown spots.

Cyanocitta cristata cristata. BLUE JAY. Apparently not common. Only one or two noted.

Perisoreus canadensis canadensis. CANADA JAY.— Common. On the occasion of our visits the birds were in family parties,— pairs of adults with families of usually three well grown, but dusky young.

Corvus brachyrhynchos brachyrhynchos. CROW.— Common. Breeds.

Euphagus carolinus. RUSTY BLACKBIRD.— A number of birds with well grown young seen on both visits.

Quiscalus quiscula æneus. BRONZED GRACKLE.—Abundant. Breeds. Large young observed June 2, 1916.

Pinicola enucleator leucura. PINE GROSBEAK— Two noted June 12, 1916.

Carpodacus purpureus purpureus. PURPLE FINCH.— Common. Breeds.

Loxia leucoptera. WHITE-WINGED CROSSBILL.— Two June 3, 1916.

Astragalinus tristis tristis. GOLDFINCH.— A few noted.

Spinus pinus. PINE SISKIN.— Noted quite commonly in early June, 1916, in pairs. Doubtless breeds.

Pœcetes gramineus gramineus. VESPER SPARROW.— Common. Breeds.

Passerculus sandwichensiss avanna. SAVANNAH SPARROW.— Common. Breeds.

Zonotrichia leucophrys leucophrys. WHITE-CROWNED SPARROW.— One noted.

Zonotrichia albicollis. WHITE-THROATED SPARROW.— Abundant breeding bird. Two of the nests found were in small spruces, one being forty inches from ground to bottom of nest, and both unusually bulky. One nest noted contained a lining of moose hair.

Spizella passerina passerina. CHIPPING SPARROW.— Common. Breeds.

Junco hyemalis hyemalis. SLATE-COLORED JUNCO.— Common. Breeds. Two nests with five eggs each noted.

Melospiza melodia melodia. SONG SPARROW.— Common. Breeds.

Melospiza lincolni lincolni. LINCOLN'S SPARROW.— Apparently not rare. A nest with five fresh eggs was found June 12, one with four small young and another with four well incubated eggs on June 21. These nests are well hidden in tussocks in marshy ground, and are hard to find as the bird sneaks off in a mouse like fashion and easily escapes notice. The nests and eggs largely resemble those of Song Sparrows, the nests noted differing in the absence of hair in the lining.

Melospiza georgiana. SWAMP SPARROW.— One noted June 10, 1916.

Piranga erythromelas. SCARLET TANAGER.— One noted June 6, 1916.

Petrochelidon lunifrons lunifrons. CLIFF SWALLOW.— Abundant breeding bird.

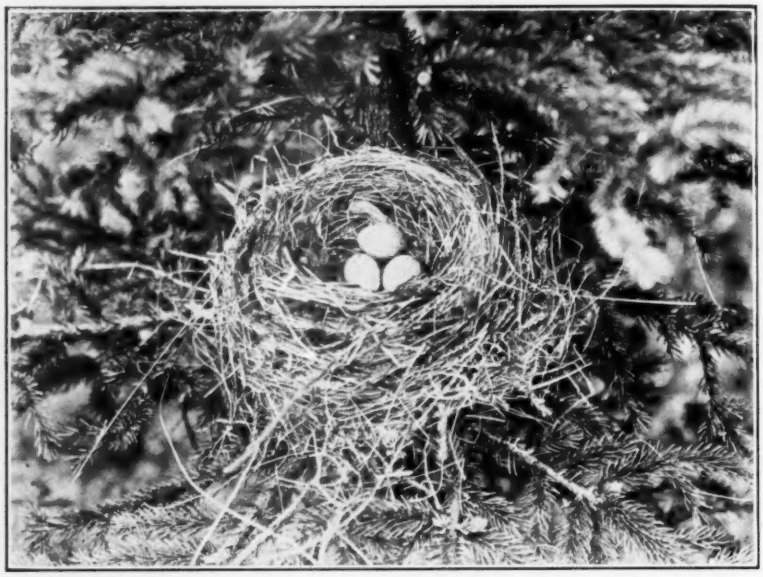
Hirundo erythrogastra. BARN SWALLOW.— Common. Breeds.

Iridoprocne bicolor. TREE SWALLOW.— Common. Breeds. A nest found June 12, 1916, contained six well incubated eggs.

Riparia riparia. BANK SWALLOW.— Common. Breeds. On June 19, 1916, the nests examined in a fair-sized colony contained mostly five fresh or nearly fresh eggs, each.

Bombycilla cedrorum. CEDAR WAXWING.— Noted commonly.

Vireosylva philadelphica. PHILADELPHIA VIREO.— Three nests with eggs of this species were found during our 1916 visit, and a number of pairs of birds were noted, where the nests were not located. The situations where nests were found, as well as where additional birds were observed, were, in every instance, on islands or along the shores of river bottoms, with a growth of willow and alder. The nests found were in slender forks of alder, at a height varying from ten to seventeen and one half feet (the latter actual measurement). On June 17, two of these nests held four eggs each, the third five, the only set of five vireo eggs of any species, of which we have knowledge. The nests are very beautiful structures, and quite different from those of the other Eastern Vireos. They are most compactly



1. NEST OF OLIVE-BACKED THRUSH.
2. NEST OF YELLOW PALM WARBLER.

built with thick outer walls of strips of birch bark, bits of rotten wood and the outer coverings of coarse weeds, well interlined with strands of a wiry moss (some species of usnea), this outer material giving the nests a tawny appearance, and even though, on June 6, 7 and 8, when the nests were first discovered, the alders were far from being in full foliage, they were very difficult to discern. Fine strands of some tree moss were used to bind the exterior material in position, the abundance of this material varying. Fine whitish shreds of grass and a little black hair formed the lining. One nest measured $2\frac{3}{4} \times 1\frac{1}{2}$ inches in depth, and $2\frac{7}{8} \times 1\frac{3}{4}$ inches in diameter. The eggs from this nest measured .76 × .53, .73 × .55, .74 × .55, and .75 × .55, in., and were white with dark brown spots and specks, the larger spots tending to have a rusty border, and resemble eggs of the Red-eyed Vireo, though smaller. The markings were rather sparse, fairly well distributed over the whole surface, though tending to greatest abundance about the larger ends. The eggs of the other set of four measured .72 × .54; .74 × .55; .76 × .56; .72 × .54 in. and the nest $2\frac{3}{4} \times 2$ inches outside diameter; $2\frac{1}{4} \times 1\frac{1}{4}$ inside diameter; $2\frac{1}{2}$ outside depth; $1\frac{3}{4}$ inside depth, in inches. The birds sit close, and when disturbed from the nest come close about the intruder, with none of the shyness that marked the behavior of Solitary Vireos whose nests we found. Mr. William Brewster described the song, in the Bulletin of the Nuttall Ornithological Club, Vol. V, 1881, p. 5, as being in general scarcely distinguishable from that of the Red-eyed Vireo, but mentioned that the present species " has, however, one note which seems to be peculiarly its own, a very abrupt, double-syllabled utterance with a rising inflection which comes in with the regular song at irregular but not infrequent intervals." In our experience with the birds, this distinctive song absolutely predominated with the general impression of a song quite distinctive from that of the Red-eye, or, in fact, of any other Vireo we had heard. These birds have the common scolding note characteristic of Vireos, but, in addition, they gave voice to several rather musical, but apparently protesting notes. In one instance, the female sung a subdued but musical reply to the song of her mate who was at a little distance from the nest on which she sat. Writers refer to color differences as furnishing the key to the identity of this species, but we found, in addition to this, that the difference in size is so apparent as to be very readily noticeable.

Lanivireo solitarius solitarius. BLUE-HEADED VIREO.— Common. Breeds. Two nests, each with four fresh eggs, were found on June 7 and 17, respectively. The former was about ten feet from the ground in a slender fork of a cedar tree, the exterior material being bound on with a considerable profusion of tree moss strands. The other was about six feet above the ground, in a spruce fork.

Mniotilta varia. BLACK AND WHITE WARBLER.— Not common. Several seen on both visits.

Vermivora rubricapilla rubricapilla. NASHVILLE WARBLER.— In 1916 we found this species far more abundant than we did in the previous

year. Two nests, containing six and four eggs, respectively, were located, the situation and general appearance being much like those of the Tennessee Warbler nests. An unusually situated nest was found in 1915 on dry upland, in a grove of small pines.

Vermivora peregrina. TENNESSEE WARBLER.— To our experiences with this bird in 1915, as described in 'The Auk' for January, 1916, we would simply add that our 1916 experiences confirm the former ones. Fourteen nests were found, of which four contained seven eggs each, six contained six, three contained five eggs each, and one contained five newly hatched young, which were covered with black down. The earliest nest with five well incubated eggs was found on June 11. A nest was found June 12 containing five fresh eggs, a sixth being laid the following day. In the case of the latest nest, the sixth egg was laid on the morning of June 27 — the day of our departure. The nest of young was found on June 25. Our data for this second visit would seem to indicate that the breeding season is liable to vary considerably with different individuals.

Compsothlypis americana usneæ. NORTHERN PARULA WARBLER.— One seen, June 15, 1916, a male, in song.

Dendroica cærulescens cærulescens. BLACK-THROATED BLUE WARBLER.— Fairly common. Breeds.

Dendroica coronata. MYRTLE WARBLER.— Common. Breeds.

Dendroica magnolia. MAGNOLIA WARBLER.— Abundant breeding bird.

Dendroica castanea. BAY-BREASTED WARBLER.— Common. Nearly every suitable bit of woods contained at least one pair of these birds. Six nests were found in 1915, as follows: one with seven fresh eggs, June 25; one with six fresh eggs, June 26; two with six eggs each, one fresh, the other about half incubated, June 27; one with seven half incubated eggs, June 29; and one with six eggs, incubation advanced, July 1. These nests were in small spruces, two of them being well out on horizontal limbs, the others close to the trunk, at heights varying from four to ten feet. None were very well concealed and some of them were remarkably open, but they blended so well with their surroundings that they were exceedingly difficult to discern. All of the nests of this species that we found resemble large structures of the Magnolia Warbler, being rather loosely constructed, of fine spruce or similar twigs, exteriorly, a little dead grass and some insect webs entering into the composition, and fine, black rootlets being commonly used as a lining. Although the birds were apparently as abundant as in 1916, only three nests were located, one with six fresh eggs June 14, eight feet up, one with six slightly incubated eggs, June 23, fifteen feet from ground, supported by two horizontal branches, against the main stem of a small balsam, near its top, in a clump of same, in partial clearing in spruce forest; the other with six slightly incubated eggs, twenty feet up against the trunk of a spruce tree at the edge of a clearing. This latter nest was in a very thick portion of the foliage and absolutely invisible from the ground, being found only by flushing the bird. A nest found June 27,

1. NEST OF BAY-BREASTED WARBLER.
2. NEST OF YELLOW-BELLIED FLYCATCHER.

1915, measured 2.50 × 1.25 inches in depth, and 3.50 × 2.12 inches in diameter. Another found June 23, 1916, measured 2.37 × 1.50 inches in depth and 4 × 2.12 inches in diameter. The eggs in the first of these two nests measured .69 × .52, .69 × .52, .69 × .51, .68 × .52, .70 × .54, .71 × .54. The ground color is a faint greenish-gray shade, heavily marked with spots and specks of reddish brown, with one or two slight washes of lighter tint and lavender shell blotches. The eggs in the other nest measured .71 × .56, .67 × .55, .72 × .55, .70 × .54, .71 × .55, .73 × .55. The ground color was rather more grayish than in the former set, thickly marked with lighter reddish brown, more in blotches, with lavender shell blotches. A set of seven measured .73 × .55, .73 × .55, .70 × .54, .73 × .55, .73 × .54; .73 × .55, .73 × .54; and the nest outside diameter 4 inches with a depth of 2 inches; inside diameter 2.15, inside depth 1.15 inches. These eggs were very heavily blotched with reddish brown and lavender, chiefly at the larger end, with a ground color of a pale blue. Some of the nests found were substantial and well built structures, though exteriorly loose, others very frail, one on a horizontal limb being so thin of bottom as to endanger the eggs falling through.

The song is of a character quite similar to that of the Blackburnian Warbler, but slightly stronger and louder. It is delivered for long periods, with considerable frequency, and at all times of day, though less frequently toward the middle of the day. It appears that the female sings from the nest, in answer to the male, and the song is markedly weaker, being scarcely distinguishable from that of the Blackburnian Warbler. The approach of an intruder is apt to cause the female to become silent.

Dendroica striata. BLACK-POLL WARBLER.— Fairly common. Breeds.

Dendroica fusca. BLACKBURNIAN WARBLER.— A not very common breeding bird.

Dendroica virens. BLACK-THROATED GREEN WARBLER.— Fairly common breeder. A nest with four slightly incubated eggs was found on June 23, 1915, about five feet from ground in little balsam in thick growth of same, in a clearing in the woods, and another, near the same place, and also in a little balsam, the bottom of the nest being only twenty-seven inches from the ground, was found June 19, 1916, containing four fresh eggs.

Dendroica palmarum hypochrysea. YELLOW PALM WARBLER.— Fairly common breeding bird in suitable spots. While the majority of the birds and nests noted were in damp, boggy ground, as recorded by Knight in the Birds of Maine, one small breeding colony were nesting on high, dry ground, in a grove of small pines. Here, on June 24, 1915, a nest with four well incubated eggs was found, at the base of a tiny spruce and some shoots, quite unconcealed. Another with four newly hatched young was on a quite bare spot of ground, but concealed under a low hanging branch of a little spruce. On this occasion it appeared probable by the action of the birds, that most nests held young. On June 28 another nest with five eggs was found, incubation almost complete. It was well concealed in a grass tussock in a boggy little creek bed. In 1916, on June 9, a nest with

four partly incubated eggs was found in the top of a tussock in a bog, under a little spruce, but not very well concealed, and another in a thick little spruce, bottom of nest fourteen inches above ground, containing four fresh eggs. On June 14 a nest was found in a pine grove where, in 1915, birds were noted, containing five young, several days old. 'It was on dry ground, under a little spruce. On June 15 a nest with four well incubated eggs was found in a tussock in a large bog. Another nest, containing four newly hatched young was found in a tussock in the same bog, June 19. A sixth nest, also containing small young, situated in a tussock in a bog, was found June 20. On June 21, in boggy ground, birds were observed feeding young out of the nest. On June 23 a deserted nest of this species was found in a tussock, well concealed by a small spruce growing over it, containing five eggs in which incubation had advanced prior to desertion. Slight decay of embryos had commenced. Though lacking parent birds, the identity of this nest, owing to composition and situation, was well established. The nest found in the spruce on June 9 was rather more substantial than most of the ground nests, though none were frail. It measured 3.50 × 1.75 inches in depth, and the same dimensions in diameter. It was composed of fine dead weed-stalks, strippings of dead weed bark and dead grasses, lined with the finest of same material, and with a few feathers worked into lining. The feathers in nest lining seem to be characteristic of this bird. A set of four eggs measure .74 × .55, .75 × .55, .73 × .55; .76 × .54, and the nest diameter outside 3½ inches and inside 2 inches with a depth of 2½ inches outside and 2 inches inside. Another set of four measure .63 × .50, .67 × .52, .64 × .52, .65 × .50, and the nest, diameter outside 3 inches, inside 1.75 inches, outside depth 1.75 inches, inside depth 1.75 inches. A set of five measure .67 × .52, .67 × .52, .67 × .52, .66 × .52, .67 × .52, and the nest outside diameter 3 inches, inside 2 inches, outside depth 2.25 and inside depth 1.25 inches. The eggs show little variation, and have a creamy white ground well spotted and blotched with brownish and lavender markings.

The sitting Yellow Palm Warbler usually runs, mouse fashion, from the nest, while the intruder is still some feet distant, and it is with greatest difficulty and the most acute watching that this movement is detected soon enough to serve as a clue to the immediate whereabouts of the nest. The bird remains silent until well away from the nest, usually until the intruder has been in the vicinity for a few minutes, when it commonly begins a vigorous chipping, the sharp, strong note characteristic of the species. The song is described in Knight's ' Birds of Maine,' as a " characteristic whistled or warbled 'tsee, tsee, tsee, tsee, tsee, tsee,' or ' peacie, peacie, peacie, peacie, peacie; ' " which is doubtless as good a description as the present authors could attempt. At any rate, those familiar with it find it easily recognizable.

Seiurus aurocapillus. OVENBIRD.— Apparently not common. A very few noted on each visit.

Seiurus noveboracensis noveboracensis. WATER THRUSH.— One noted June 25, 1915.

Seiurus motacilla. LOUISIANA WATER THRUSH.— A pair were observed feeding young on the wing, June 25, 1915. Notwithstanding the fact that the region is well north of the recognized range of this species, and of the further fact that no specimen was taken, the birds being carefully observed at close range and noted to possess the characteristics of this species, in addition to the immediate comparison with a specimen of *S. n. noveboracensis*, the authors feel convinced that the identity was correctly designated.

Geothlypis trichas trichas. MARYLAND YELLOW-THROAT.— A quite common breeder. Two nests, each containing four fresh eggs, were noted on June 15 and 23, respectively, 1916, and another with four well incubated eggs on June 25.

Wilsonia pusilla pusilla. WILSON'S WARBLER.— We first noted this bird on June 9, 1916, when two males and a female were observed in the bog where two nests of the Yellow Palm Warbler were found. The actions of these birds indicated that nesting might be under way. On June 16, a nest with five eggs, in which incubation was well commenced, was found in a boggy and quite wet clearing, surrounded by woods, with a considerable growth of small cedar, tamarack, spruce and balsam saplings. This nest was built in the side of a moss tussock, resting in the angle formed by the abrupt side of the tussock and a little cedar, at the base of which the nest was placed. It was composed of moss, dead leaves, fine weed stalks and grasses, a little hair being mingled with the lining of fine, dead grass. It measured 3.50 × 1.50 inches in depth and 3.50 × 1.75 inches in diameter. These eggs, ovate in shape, were white, profusely marked with spots, specks and blotches of rusty, reddish-brown, blotches of lighter shade, and fine specks of lavender, thickest about the larger end, where they formed well defined wreaths. They measured .65 × .47, .65 × .48, .64 × .47, .67 × .49, .66 × .47.

On June 10, 1916, a female was observed building, and by watching from concealment, the nest site was located. The first material, consisting of fine reddish roots was just being placed in the cavity, which was carefully hidden within a thick tuft of dried grass along the edge of an old log, near to, but not really in boggy ground. On June 17 this nest was completed and contained one egg. In the very few moments that we were there the birds were not seen. On June 21 the nest contained four eggs, on which the female was sitting. These eggs were a different type from those described above, being quite round and heavily sprinkled with fine reddish-brown spots thickest near the larger end.

On June 19 another nest with four fresh eggs was found in a tussock in the same bog and within a few rods of the spot where the one found June 15 was located. June 21 another nest was located containing five well incubated eggs of the ovate type, which measured .65 × .50, .67 × .47, .66 × .48, .66 × .47, .65 × .46. It was in the same general locality where the birds were first observed on the 9th, but was concealed in heavy grass cover, in a fairly flat spot, and in the midst of a dense tangle of coni-

fers and other brush. This nest would probably never have been located, but for the accident of the bird flushing right from our feet. The eggs of the two sets of four were very different in shape, being much rounder. A set measured .61 × .51, .61 × .51, .63 × .51, .63 × .50, and the nest measured, outside diameter 3.50 inches, inside diameter 2 × 1.50 inches, outside depth 2.50 inches, and inside 1.50. Another four measured .61 × .50, .62 × .50, .60 × .50, .62 × .50; and the nest, outside diameter 3 × 3.25, inside diameter 1.75, outside depth 2.50, inside depth 1.50; all in inches. These eggs were heavily spotted with reddish brown and cinnamon, and the coloring is such as to give a pinkish cast to the eggs even when blown. The nests are typical and readily distinguishable from other ground nesting warblers of the region, being very bulky for such a small bird.

In the case of the nest with five eggs, first found, the female continually returned to the nest with intruders close at hand, but others were rather more shy. The male was not noted about the site of occupied nests to any extent, in any instance.

The song is compared by Minot to that of the Redstart or Yellow Warbler; is given by Nuttall as " tsh-tshtsh-tshea " and by Goss as " zee-zee-zee-see-e," the latter being indorsed by Knight, who says, " with a rising inflection on the last e."

Wilsonia canadensis. CANADA WARBLER.— Common and doubtless breeds.

Setophaga ruticilla. REDSTART.— Fairly common. Breeds. A nest was found building on June 28, 1915, and another just completed July 1. Two nests found just completed on June 8, 1916, contained four eggs each on the 17th. These were in willows at a height of about eight feet, in the same locality as the Philadelphia Vireos, while the 1915 nests were in good sized yellow birches in partially cleared woods.

Nannus hiemalis hiemalis. WINTER WREN.— A few noted. A pair were feeding large young, which were beginning to fly on July 1, 1915. Two of these young birds were caught and banded.

Certhia familiaris americana. BROWN CREEPER.— A nest containing young about a week old, was found June 22, 1916, under loose bark on a dead stub in damp and fairly heavy woods. The bark on which the nest rested had started to break away, requiring repairs on our part to obviate danger of the young birds being prematurely deprived of a home.

Sitta canadensis. RED-BREASTED NUTHATCH.— Common. Breeds.

Penthestes atricapillus atricapillus. CHICKADEE.— Fairly common. A nest was found June 17, 1916, containing young. It was in a dead willow stub, only two and one half inches in diameter and five feet in height.

Penthestes hudsonicus littoralis. ACADIAN CHICKADEE.— Fairly common. One seen carrying nesting material, June 7, 1916. On the 20th, a nest with young was found, about a foot above the ground in a stump, and on the 23rd, in a similar situation, a nest just completed.

Regulus satrapa satrapa. GOLDEN-CROWNED KINGLET.— Very common. Breeds. June 26, 1915, a nest was found, hung in the fronds of

spruce branches close to the trunk, thirty feet up. It contained bits of egg shell, and appeared to have been broken up by some mammal.

Regulus calendula calendula. RUBY-CROWNED KINGLET.— Common, breeds.

Hylocichla ustulata swainsoni. OLIVE-BACKED THRUSH.— Abundant breeding bird. Nests building, just completed or with eggs were found during the entire period of both visits, and with young after the middle of June.

Hylocichla guttata pallasi. HERMIT THRUSH.— Common. Breeds. Nests with four eggs each, incubation nearly complete, were found June 18, 1915, and June 11, 1916, and a nest with three fresh eggs, June 24, 1916.

Planesticus migratorius migratorius. ROBIN.— Abundant breeding bird, nests being found everywhere, even out in fairly dense second growth woods. One nest contained young nearly ready to leave it on June 21; another held three nearly fresh eggs, June 24.

Sialia sialis sialis. BLUEBIRD.— A very few seen. A nest containing young and one addled egg was found on June 9, 1916.

MISS LAWSON'S RECOLLECTIONS OF ORNITHOLOGISTS.

BY FRANK L. BURNS.

IN a batch of papers relating to the life of Alexander Wilson loaned me by the late Frederick B. McKechnie, I found an interesting series of letters running from June 21, 1879, to February 20, 1883, signed by Malvina Lawson. The matter which appeared most valuable was copied verbatim but owing to my friend's desire to publish, it was scarcely drawn upon for my papers on Wilson. Mr. McKechnie's sad death occurred before he was able to carry out his intention and the original letters having been lost or destroyed, it seems desirable to publish my extracts. Miss Lawson was the eldest daughter of Alexander Lawson, who was born in Ravenstruthers, Scotland, December 19, 1773; came to Philadelphia in May, 1792, and died there August 22, 1846. He is described as a tall thin man of large frame and athletic; full of animation, good feeling and the love of truth, but inclined to be satirical. Miss Lawson says: "My father has been represented as

speaking broad Scotch which is simply ridiculous, I never heard him use a Scottish word except in jest or in reading his favorite Scottish poets."

He engraved plates for the 'American Ornithology' of Alexander Wilson and Charles Lucien Bonaparte; George Ord's unpublished work on mammals; the 'Monograph of the Fresh-Water Univalve Mollusca' of Prof. Samuel S. Haldeman and the 'Terrestial and Air-Breathing Mollusks' of Dr. Amos Binney, beside various illustrations on botany, chemistry and mineralogy.

There were eight children, five of whom reached maturity: Malvina, Helen E., Catherine, Oscar A. and Mary, all inheriting the artistic talents of their parent. Malvina and Helen colored by hand most of the plates of Ord's edition of Wilson's 'Ornithology' and whatever superiority it possesses is entirely due to the skill of the girl artists. It is said that with the beautiful preparations from the Philadelphia Museum for models, they labored steadily at this work for three years and received five thousand dollars, at that time an almost unheard of sum for two young girls to earn.

Helen, perhaps the most versatile of the sisters, executed the drawings for the works on conchology by Prof. Haldeman and Dr. Binney, and also engraved the life-sized figure of the Rice Bunting used in Harrison Hall's prospectus of Wilson's 'Ornithology.' Oscar was born in Philadelphia, August 7, 1813; learned engraving under his father; was employed by the U. S. Coast Survey at Washington from 1841 to 1851, and died in Philadelphia, September 6, 1854.

The surviving sisters, Miss Malvina and Mrs. Mary L. Birckhead, removed to West Chester, Pa., in 1872, where the former died on April 6, 1884. Mr. R. P. Sharples of West Chester, to whom I am indebted for much information, was well acquainted with the sisters and recognized them as ladies of great refinement and culture. Among the family treasures was a handsome oil painting by Miss Malvina of her three sisters and a sketch book containing the work of all members of the family. Miss Lawson was born about 1806; she possessed a strong personality, a vigorous mind and was most loyal to her friends; yet it is to be feared that certain unfortunate events resulting in the loss of long cherished family treasures, somewhat embittered her later days. Mrs. Birckhead,

who was twenty years younger, survived her sister but a short time and the family is now without a living representative.

Miss Lawson writes of her father's distinguished visitors with an artist's love of detail and all the frankness of an impressionable child. How well she recalls a little act of kindness by good old William Bartram, and her description of the personal appearance of Alexander Wilson ought to set to rest the talk of his absolute poverty and especially that of his "fingers stiffened by toil and manual labor." It has been said that Wilson owed little to his engraver, but it is shown here that he sometimes made only an outline drawing leaving Lawson to fill in the details directly from the specimen; and this must be true since drawings of this nature are still in existence.

Miss Lawson's analysis of the character of George Ord can scarcely be excelled. Ord, admirable in many ways, was insanely intolerant of any opposition and was the instigator of the persecution of John J. Audubon by Waterton and others. The only pleasing feature of this attack is the refusal of "Good Charles" Bonaparte to allow his judgment to be swayed by the prejudice of his friends. But we shall let Miss Lawson tell of these things in her own way. Of Bartram she writes, "When a child I saw Mr. Bartram. He was a very charming old gentleman and he gave me a very double yellow rose, a great rarity at that time, and every summer we made more than one excursion to the garden."

"The article on the death of [Governor Meriwether] Lewis," she writes, "recalled to my mind hearing my father speak of him as being one of the most proud and sensitive of human beings. The neglect of the Government to ratify the arrangements he had made in good faith, seemed to madden him. He was rather small and dark, in strong contrast to Clark his companion. My father engraved the new Antelope they discovered, and the Horned Sheep of the Rocky Mountains. They certainly were the first animals (mammals) fit to be looked at that were ever engraved in this country." The Wilson matter follows:

"I do not feel certain whether the profile likeness (of Wilson) drawn by Barralet, was taken before or after death. My father said it did not do him justice although it gave some idea of him. Barralet had been a teacher of drawing in England and Ireland,

and you see he knew something of engraving as he copied his own work in stipple which was fashionable in that day. He certainly took a good profile, as the one he made of father proves."

"Wilson was very particular on the subject of the linen he wore, and the white cravat and ruffles were as important to him as a fine ladies' dress is to her. I am certain of all I say on this matter, not from my own memory but from the discussions I have constantly heard all my youth on the habits and manners of a man whose work has rendered him famous. My father received numberless visitors from all parts of the world, and particularly Scotland; who desired to learn everything concerning him. He might have been a little careless, but nothing eccentric; his dress was that of other gentlemen of the period. Wilson was almost a pure type of the bilious temperament, which you are aware is one best fitted for constant exertion, either mental or physical. He could bear great fatigue without flinching. His height was five feet and eleven inches. When preparing for one of his expeditions he was in the habit of taking a walk every morning, increasing the distance daily and when he could make twenty miles without much fatigue, he started on his journey."

"Some twaddle speaks of his bony hands knotted and hardened by labor, struggling to paint birds! In the first place Wilson never painted birds, he drew them in water colors, and more frequently in outline, either with pencil or pen, and my father finished them from the birds themselves. I have heard my mother speak of his hands as being small and delicate, and there was nothing in his occupation to particularly injure his hands; as I mentioned before, he wrote beautifully and played charmingly on the flute."

"I think I mentioned the drawing of Wilson's school house my sister Helen had made when quite a young girl, many years before Mr. Weaver's; it has the old trees around it and is very picturesque. Mr. Eastwick who purchased Bartram's garden, saw it and pronounced it excellent and indeed historical."

"The tomb which covers the remains of Wilson was erected by the lady he was to have married, Miss Sarah Miller, sister of the Hon. Daniel Miller, Member of Congress from the upper section of the City. The Swedes' church now occupies an obscure portion of Philadelphia, but at that time it was open to the Delaware and

nearly in the country, so that the old Lutheran pastor could see his apple orchard from his pulpit. Many years ago, a gentleman much interested in Wilson, was anxious to have his remains transferred to Laurel Hill Cemetery, a beautiful and picturesque place on the banks of the Schuylkill; he consulted my father who saw no objection but on applying to Mr. Ord, who was the sole surviving executor, he positively refused to permit the removal."

"Rider, the artist who undertook the coloring of Wilson's first edition, was a Swiss painter in oils; he understood water colors however, but to facilitate his work, spoiled a great many copies by using opaque colors both in Wilson's and afterwards in Bonaparte's works. Of course none of this trouble was felt in the same way by Bonaparte, although he complains bitterly of Rider."

George Ord, Wilson's biographer and editor of the latter volumes of his work Miss Lawson knew personally. Of him she writes:

"Mr. Ord was a very singular person, very excitable, almost of pure nervous temperament. Proud, shy and reserved toward strangers; but expansive and brilliant with his friends; an elegant belles-lettres scholar and when he chose, shone in conversation. In his moral character and his business relations he was one of the most upright of men. He had many excellent qualities, was a strong partizan and was charming in conversation when it pleased him to be so. He had much of the nervous grace of a woman when he spoke on literary or sentimental subjects. I remember my father laughing heartily when I was about nine years old; I said I thought Mr. Ord conversed like a woman, and being asked why I thought so, I said: because he could show off all his knowledge to the best advantage. He particularly detested children and the fear of intruding on him accompanied me all his life. He would get in a temper of rage at times. Father, who valued his good qualities, never very steadily opposed him; but my mother had many arguments with him. I have seen him snatch up his hat and rush out of the house, declaring he would never enter again, and the next Sunday he would walk in to tea a usual as if nothing had happened. He took tea at our house every Sunday for years. He was very much respected but not very much loved. He would often speak very rudely to gentlemen, and more than once father was consulted as to whether Mr. Ord should receive a challenge for what he said, but father was always a peacemaker."

"Toward the close of his life he did some queer things. He must have destroyed the likeness of himself that his son painted and also the plates that my father engraved for his proposed work on animals (quadrupeds); nothing of the kind was found among his effects and not a line of the descriptions I know he had written. He dropped this work on a reverse of fortune; having lost heavily in railroads. Had the work been continued it would have been an honor to the country. There are only two works that would have approached it: Scotts' Dogs and Churchs' Horses. There were only four plates engraved. Mr. Ord allowed the Academy of Natural Sciences to print a limited number of copies from the plates of the Rat and Ground Hog, I think about 100 impressions. I have only one copy of the frontispiece, a group of the smaller Quadrupeds, Weasel &c. drawn by Le Sueur, a French artist, and very prettily engraved. I wish I could send you entirely finished copies, but the Ground Hog is the only one that is so. The Elk and the Florida Rat are not finished, as you will observe on the impressions of the Rat that my father has written 'unfinished.' In the Ord letter edited by Dr. Coues, he mentions presenting impressions to Leach of the British Museum. Mr. Ord often expressed a determination that no one should profit by these engravings and no one has done so. To his other oddities he added the last whim of leaving all he died possessed of, about $40,000. to the Penn. Hospital for the Insane, although he had nephews and nieces in very limited circumstances. Toward the close of his life he shut himself out entirely from the world, living with his books. He had lost most of his old friends and made no new ones."

"Charles Bonaparte," writes Miss Lawson, "married one of his cousins (Zenaide) a daughter of Joseph, ex-king of Spain. She accompanied her husband several times to our house. Her sister Charlette, Joseph's youngest daughter, was quite an artist. While she lived with her father at Bordentown, she took several views on the Delaware. Mr. Ord accompanied her on some of these occasions and said that he had never seen such a rapid pencil. She afterward engraved all the drawings she took here, on stone, and Charles Bonaparte gave father impressions of her work. She married a cousin, I think a son of Jerome, who also was an

artist and etched very spiritedly on copper. Charles sent this with some of his sister-in-law's drawings from Florence."

"I do not know whether you ever saw any uncolored impressions of Bonaparte's work? Every one said it was a pity they should ever be colored. The Condor in particular is wonderful and so are some of the Geese."

"I do not know the commencement of the strife, but the advent of the Prince of Munsigno set the whole Academy [at Philadelphia] by the ears. He appeared to make warm friends and equally warm enemies. He would come to father and tell him in high glee of the last *war-whoop* and its effect, laughing heartily. For a time he seemed to take a sort of boyish delight in setting them all by the ears, but he grew tired of the fuss and I think it was one reason of his return to Europe."

"I only caught a glimpse of Mr. Waterton when he called on father; he was the darkest white man I ever saw. He left a bird set up in the style he had invented, for father to examine. It was the most perfect thing I ever saw, not a feather was rumpled. It was hollow and the shape of the bird carefully preserved. Father did not think it would last long and I believe this was the case."

"I have no doubt Mr. Ord does not spare Audubon, I have heard him expatiate too frequently on that subject not to be fully aware of his bitter scorn and contempt. I saw Audubon when Bonaparte brought him to see father. He looked like the backwoodsmen that visit the city. His hair hung on his shoulders and his neck was open."

"Ord wrote Lawson from Paris, dated Mar. 14, 1830: 'You make some pretty tart remarks upon the work of that imposture Audubon, who has endeavored to keep the public curiosity alive for a long time. Your criticisms are just and men of intelligence will be obliged to acknowledge them. If one of your uncommon experience be not a complete judge of these matters; then in the name of common sense who is judge? You tell me that a certain Professor of Botany declared that the drawings of the plants are excellent. Now I have the pleasure of conversing when in London with two botanists quite as well known as Soloman C., one was the illustrious Robert Brown, they both asserted that the Botany of Audubon's plates was good for nothing. What is the fellow doing in America? He surely cannot be in want of matter, for

what he carried to Europe would suffice for a long time. Did he expect to procure subscribers? If so he surely made a mistake. I hope I. C. will prevail with the Library com. to subscribe for a copy; otherwise I fear that when one wants to examine the Elephant with a view of studying its character, one will not know where to find it.'

"Another letter written by Ord about 1838, from the home of Waterton, Walton Hall, Wakefield, Eng.: 'By the way, some of Waterton's essays would amuse you vastly; he gives some terrible thrusts at Audubon. Lizars of Edinburgh, Audubon's first engraver, was here a few days ago; if I had room I would tell you what he said of the great ornithologist whose reputation is sadly on the wane.'

"Here is an extract from a letter of Charles Lucien Bonaparte in reply to one from Lawson: 'Rome, July 2, 1836. As to Audubon, although his work is not faultless; be sure you under rate him a little too much. There is some merit in some of his plates, that of the Goldfinch appears to me very superior. I am sorry to hear that he had such a bad reception in the U. S. I have got him several subscribers. I cannot take your wicked commission to Temminck for I have scolded him severely for not subscribing to the work at my recommendations. Some of Audubon's plates are superior to Temminck's, who vilifies them. As to Audubon's new species, I shall never rely on that; slight variations do not make new species.'

"The only acquaintance I had with Nuttall," writes Miss Lawson, "was when I colored his plates in his continuation of Michaux's work on the trees of America. You know the drawing and coloring of the original Michaux were exquisite. Nuttall had his coloring made up from other works, especially from Michaux. Nuttall himself was the least attractive of the Genus Homo I ever met. I could never imagine any Englishman so dirty and disorderly in his dress and appearance. I suppose he was a good botanist. I have heard young men who studied with him, speak of him with great respect as a teacher, but I thought his manners rough and abrupt."

In a five page reference to Dr. Coues' criticism of some of her father's work, Miss Lawson writes: "Never again will such engraving be seen! The day of fine work of that kind is over; and except one or two English works on natural history, nothing has approached it."

THE STATUS OF THE BLACK-THROATED LOON (*GAVIA ARCTICA*) AS A NORTH AMERICAN BIRD.

BY F. SEYMOUR HERSEY.

IN collecting and tabulating data for use in the distributional portion of Mr. A. C. Bent's work on the Life-Histories of North American Birds, the published material on the Black-throated Loon was found to be unsatisfactory,— the records of various observers being frequently indefinite or in many cases not based on actual specimens secured. The earlier writers gave the species a rather wide range in North America, which has been gradually restricted until in the present A. O. U. Check-List it is stated to breed only in the Kotzebue Sound region of Alaska, and from Cumberland Sound south to Ungava, while some half dozen scattering localities in the United States are said to have been visited casually in winter.

It was finally decided to verify, so far as possible, all North American records and requests for data were sent to all who were in a position to give authentic information concerning any of the various records or the specimens on which they were based. The results of this correspondence proved no less interesting than surprising.

Mr. Bent has very generously placed all this data in the hands of the writer. He has also examined and measured the specimens of this species and *Gavia pacifica* in the collections of the U. S. National Museum, the Museum of Comparative Zoölogy (including the Bangs collection) and the private collection of Mr. William Brewster. Mr. W. DeW. Miller of the American Museum of Natural History and Mr. P. A. Taverner of the Geological Survey of Canada have measured the birds in the collections of those institutions and Dr. Louis B. Bishop has sent notes and measurements from the specimens in his collection. I have tabulated below, by locality, the various records and the results of our investigations.

Alaska: It was formerly supposed that the Black-throated Loon ranged along the whole Bering Sea coast of Alaska. There

are two specimens in the National Museum collection (No. 64303, St. George Id., Pribilofs, June 22, and No. 76004, St. Michael, taken by Nelson) and one in the collection of Mr. Brewster (No. 48760, Nome, August 20, 1905). All other Alaskan specimens that we have examined are *pacifica*. The breeding of the species in Kotzebue Sound appears to rest on the records of Grinnell (Pacific Coast Avifauna, No. 1) of two sets of eggs taken in 1899. Dr. Grinnell writes under date of April 11, 1916, "In my Kotzebue report it is my impression that I simply followed the custom of preceding naturalists in the region (Nelson, et al) and used the name *arctica* on no other ground." He also states, "There are no birds in any of our collections, from the Kowak region of Alaska, but I think it is justifiable to suppose that they are the same, namely *pacifica*."

Hudson Bay Region: In the 'Ornithological Results of the Canadian 'Neptune' Expedition to Hudson Bay and Northward,' 1903–1904, Eifrig records (Auk, XXII, p. 234) both birds and eggs taken at Southampton Island by A. P. Low and that they were breeding abundantly. Mr. Taverner writes, "I have Low's Hudson Bay birds and I can see absolutely no difference between them and the Pacific. In fact, of some thirty birds taken from Southampton Island all along the Arctic Coast and B[ritish] C[olumbia] I can make but one form."

Cumberland Sound Region: Kumlien's record (Bull. 15, U. S. Nat. Mus.) is apparently our only authority for this region. While he states a bird was shot June 24, this specimen is not now in the National Museum and no others appear to have been taken.

Ungava: I do not know on what authority this loon has been attributed to Ungava. Turner in his list of Labrador birds (Proc. U. S. Nat. Mus., 1885), based principally on his observations in Ungava, mentions only Stearns' record and this record refers to the Labrador coast and not to this locality. Mr. W. E. Clyde Todd found birds paired and evidently breeding on the east coast of James Bay but all were *pacifica*. Mr. J. H. Fleming writes that all birds from James Bay that he has seen were Pacific Loons.

Labrador: Audubon mentions (Birds of America) that he saw a few pairs while in Labrador, but apparently none were secured. He does not state where the specimens were obtained from which

his drawings were made but probably they were European birds. R. Bell records (Rep. Prog. Geol. Surv. Canada) male, female and young shot on Nottingham Island, Hudson Strait, August 28, 1884. If these birds were preserved they are not now in the museum at Ottawa. Mr. J. H. Fleming states that birds from Hudson Strait in his collection are *pacifica*. Mr. W. A. Stearns mentions (Notes on the Nat. Hist. of Labrador) two specimens shot by one of the French priests at Bersimis but does not indicate what finally became of them or if either was preserved. Dr. Charles W. Townsend informs us he does not know of any Labrador specimen of this species in any collection.

It appears that some form of Black-throated Loon occasionally occurs on the Labrador coast but until a specimen is secured and compared with specimens of *pacifica* it seems best to consider all records as more or less questionable.

Greenland: As *Gavia arctica* occurs in Iceland, it seems probable that it may occasionally be found in southern Greenland but there does not appear to be any trustworthy record. Mr. J. H. Fleming writes that he has specimens from the Carey Islands north of Baffin Bay and they are Pacific Loons.

Quebec: All records for this province that I have seen refer to Labrador.

New Brunswick: Baird, Brewer and Ridgway (Water Birds, Vol. 2) mention a single specimen taken at Point Lepreau, in the Bay of Fundy. This is the same as the record in the 'Proc. Bost. Soc. of Nat. Hist.,' Vol. 17. It is very indefinite and no further information is given. Herrick's statement (Bull. Essex Inst., Vol. 5) that this species "occurs in winter" at Grand Manan is not verified by more recent observers or substantiated by specimens.

Maine: A bird taken at Cutler, Maine, in December, 1881, is said to be in the possession of Mr. Newell Eddy of Bay City, Michigan. Knight says (Birds of Maine) that its correct identification has been "shown to be unquestionable." As so many specimens supposed to be correctly identified have proved to be something very different, it seems desirable that this bird be reexamined.

I am informed by Mr. Norman A. Wood that Mr. Eddy has recently passed away and it is not possible, at this time, to examine the birds in his collection.

Massachusetts: There is no authentic record for this State although young birds supposed to be Black-throated Loons have been occasionally recorded. The records are not allowed by Howe and Allen (Birds of Massachusetts).

Connecticut: Sage and Bishop (Birds of Connecticut) do not list this species in their book. It has been given by early writers, undoubtedly in error.

New York: A full plumaged adult male was shot April 29, 1893, on Long Island and was recorded by Mr. William Dutcher in 'The Auk', Vol. 10, p. 265. This record is the only one for New York that is based on an actual specimen and it has been very generally quoted. The bird is now in the American Museum of Natural History and Mr. W. DeW. Miller, who has recently critically examined and measured it, writes that it "is unquestionably *G. pacifica.*"

South Carolina: Audubon is the only authority for the occurrence of the Black-throated Loon in this State. It has not since been observed. Wayne (Birds of South Carolina) states, "Audubon was unquestionably mistaken in the identification of the bird shot."

Texas: Audubon also recorded this species from Texas. Baird, Brewer and Ridgway discredit the record which is, with little doubt, an error.

Ontario: It is supposed that this loon has occurred several times in Ontario. Mr. J. H. Fleming has looked up several records from this region and says that, so far, he has "found no record that will bear investigation." Also, "if any Black-throated Loons occur in the Great Lakes they will be *pacifica.*"

Ohio: There are also several supposed occurrences of this species in Ohio. Prof. Lynds Jones, writing in regard to these records, says, "Dr. Wheaton mentions the capture of one specimen, but on hearsay evidence. I had several reports of specimens captured by trustworthy persons, but I cannot vouch for them personally. A specimen was sent to me two years ago from Painesville, purported to be a Black-throated, but I did not make it out such, and so sent it to Oberholser, who pronounced it a Red-throated."

Illinois: Mr. Ridgway writes regarding including this loon in the avifauna of Illinois, that "it was based on purely 'general

considerations only' at a time when probably no one doubted the occurrence of that species in North America and that it was not based on a specimen. We were, unfortunately, not so particular about such things in the earlier days."

Wisconsin: It is supposed that the Black-throated Loon has been taken three times in Wisconsin. Kumlien and Hollister refer to these records (Birds of Wisconsin) very briefly. One is said to have been taken at Milwaukee and to be in the Public Museum of that city. Mr. Henry L. Ward, director of that institution, writes under date of February 8, 1917, "I have been trying to run down the reported Black-throated Loon contained in this museum, but can find no trace of it at all. The specimen is evidently not contained in any of our series of mounted birds, nor in the series of bird-skins." Another bird, taken at Racine, is reported to be in the collection of Dr. Hoy and a bird said to have been shot in 1860 on Rock River, near Janesville, in the collection of a gentleman from Rockford, Illinois. Mr. Hollister says of these records (letter February 20, 1917), the Rock River record "is from the notes of Thure Kumlien and considering the date and circumstances I should not accept it as a real record to-day." He further says, "I have been over the Hoy collection very carefully and do not remember seeing the specimen recorded from his collection, but as the Hoy collection was left without any labels whatever (except the *name* of the bird) and his records were not to be found, that record would be far from satisfactory." He concludes, "At any rate, I am prepared to drop the bird from the Wisconsin list."

Michigan: It was once supposed that this species occurred in Michigan but the latest authority on the birds of that State, Prof. W. B. Barrows (Michigan Bird Life) does not accept any of these records. He says, "We have been unable to find a Michigan specimen in any collection, and have been equally unsuccessful in finding an unquestionable record of its occurrence. Until something more definite can be shown it seems best to exclude it from the regular list."

Minnesota: Dr. P. L. Hatch (Notes on the Birds of Minnesota) lists this species on the strength of supposed specimens seen between 1858 and 1869. No birds were secured.

Iowa: Dr. R. M. Anderson records (Proc. Davenport Acad. Sci., Vol. XI) three specimens of this loon from Iowa. One was, at that time, in the collection of the State University at Iowa City (No. 10175). Regarding this bird Prof. Dayton Stoner writes, "I am sorry to report that I am unable to find any specimen of *Gavia arctica* in our collections." The two remaining records are of birds reported by Mr. H. J. Giddings. One of these is said to have been identified by Dr. C. Hart Merriam and is still in Mr. Giddings' possession. Dr. Merriam has written us that he does not now recall this bird but a memorandum he has, which was made in connection with the examination of this specimen, states that all United States records are *pacifica.* Mr. Giddings states in a recent letter that the bill of this bird measures 2.15 inches from which it seems evident that it is a Pacific Loon.

In a recent letter Dr. Anderson says, "I have no doubt personally that either *Gavia arctica* or *Gavia pacifica* occurs occasionally as stragglers or accidentally in Iowa. From what I have learned in the last few years, however, I am inclined to think the bird would be *pacifica.*"

Nebraska: Regarding supposed records from this State Prof. Myron H. Swenk writes (January 27, 1917), "I think you will find that all of the several records of this species depend back on the record published in the 'Birds of Nebraska (1904)' from Curtis, Nebraska, in the Rees Heaton collection. This bird is in immature plumage and resembles in size and the broad edgings of the back feathers immature specimens of the black-throated loon, but a careful study I made of it a couple of years ago convinced me that it was really referable to the common loon. Fortunately, a little later Mr. H. C. Oberholser was visiting me at Lincoln and examined this specimen carefully, with the result that he pronounced it the common loon. We have accordingly stricken the black-throated loon from the Nebraska list, since this was the only specimen even supposed to be that species which has been taken in the state."

Colorado: All definite records from this State are from the vicinity of Colorado Springs. C. E. Aiken reported five birds taken, although apparently but one was preserved. This bird is in the Aiken collection at the Colorado College. Mr. Edward R. Warren

informs us this bird was sent to Prof. W. W. Cooke in 1915, and "he reported it to be an immature Common Loon." He also says, "Aiken told me that other Loons have been taken in this vicinity and were like this bird."

Washington: Mr. Samuel N. Rhoads recorded (Proc. Acad. Nat. Sci. of Phila., 1893, p. 29) a female secured and others seen at Nisqually during April, 1892. This bird is now in the Academy of Natural Sciences and has been recently examined by Dr. Witmer Stone, who says, "I am confident that this specimen in only *immer*. It is very much worn and is 'made up' small. The bill is smaller than some specimens of *immer* but matched by others and is much larger than any *pacifica*." Dawson and Bowles (Birds of Washington) refer to another specimen, in the collection of the State Normal School at Bellingham, taken by J. M. Edson. Mr. Edson informs us that "this is clearly an error. I have never succeeded in securing a specimen of the Black-throated Loon. I think the statement was intended to apply to the Red-throated Loon."

British Columbia: According to Fannin this species has been taken at Burrard Inlet and at Dease Lake, Cassiar, B. C. I have not been able to obtain any further information concerning these records.[1]

Conclusion: From the above it appears that there is not a single North American specimen of the Black-throated Loon in any collection in this country or Canada, with the exception of the three Alaskan birds. Every record that is based on a specimen proves to refer to some species other than *arctica* when the specimen is carefully examined. In view of this fact, we cannot place much value on the records that cannot be verified at the present time. The three Alaskan specimens, when compared with available material from Siberia and northern Europe, prove to be the Asiatic form, *Gavia arctica suschkini* Sarudny, and not *Gavia arctica arctica* (Linnæus). If this Asiatic subspecies is accepted as distinct from the European bird, it is this form that should appear on our Check-List and *Gavia arctica arctica* should be dropped until such time as a North American specimen is procured and, by careful comparison

[1] Since the above was written I have examined the two British Columbia birds. One is clearly a Pacific Loon. The other is most like Siberian specimens and may be a straggler from that country. It is *not* the European form of *arctica*.

with European birds, proved to be of that form. If, however, we do not recognize *Gavia arctica suschkini* as distinct, then the European bird is entitled to a place in our avifauna only on the strength of its casual occurrence in Alaska.

AN IMPROVED OBSERVATION TENT.

BY R. M. STRONG.

Plate X.

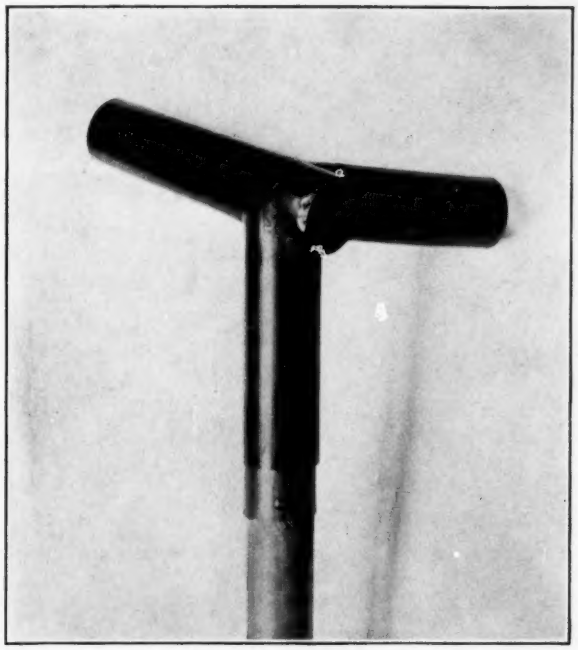
IN a preceding number[1] of this journal, I described with an illustration, a tent which I had used in studying gulls at their breeding places. This tent was a modification of a type described by Sawyer.[2] It is inexpensive and free from certain objectionable features of other bird blinds. However, it is small and low. Being only four feet high, one is not able to stand erect in it, and there is not sufficient space to handle apparatus comfortably. In the same communication, I stated that I had devised and used a larger tent since doing the work there described. It has occurred to me that an account of the improvements might be useful to some readers of this journal.

Tents of this type have no stay lines to interrupt the camera view, and they can be set up on rocky sites where it is not practicable to drive tent stakes. Furthermore, they are of very convenient shape, and are economical of ground space.

The contour of the tent is maintained by a frame which gives a flat horizontal roof and steep, slightly-sloping sides. The frame consists of eight poles held in position by four socket pieces at the corners of the roof and four anchoring poles to be described later. In the older tent, the frame poles were held together by blocks of

[1] Strong, R. M. On the Habits and Behavior of the Herring Gull, *Larus argentatus* Pont. The Auk, Vol. XXXI, Nos. 1–2, January–April, 1914. Plates III–X and XIX–XX, 1 text figure.

[2] Sawyer, E. J. A Special Bird-Blind. Bird Lore, Vol. XI, no. 2, March–April, 1909, pp. 71–73. One page of text figures.



1. CORNER BRACKET OF BRASS TUBING.
2. TENT IN POSITION, MUSKEGET ISLAND, AUG. 7, 1913.

wood in which holes were bored on three sides for the end, side, and upright poles. It has been my experience that these blocks are very unsatisfactory. Wear and shrinkage at the sockets make the fitting insecure, and a very small amount of looseness allows a large amount of sagging of the whole tent to leeward in a breeze. Furthermore, the blocks must be relatively large and clumsy to stand the strain put upon them, and they make a smooth fit of the cloth impossible. I found it necessary to brace the leeward side with sticks or boards which of course interfere seriously with the view and are often blown down by a strong wind.

I have been unable to get satisfactory poles for the tent frame in the vicinity of the places where I have used the tents. Furthermore, it requires more time to prepare poles properly than I have wished to spare after reaching a place for work. Since my first day in the field with a tent, I have always taken poles with me carefully prepared in advance.

In place of the clumsy wooden blocks, I had some brass corner pieces constructed. These consist of three short tubes brazed together (see Fig. 1), and lacquered black. These tubes have an inside diameter of 22 mm., and each is about 70 mm. long. One of these receives the end roof pole, another a side roof pole, and the third an upright supporting pole. The roof poles each make an angle of 103 degrees with the upright supporting pole. The angle of the two horizontal poles is of course 90 degrees. In place of the heavy hardwood, I have substituted bamboo poles. These are prepared from ordinary bamboo fish poles, selecting portions of suitable diameter. Brass ferrules were fitted on the ends of each roof pole and on the upper ends of each upright pole. These are necessary for a firm joint and were prepared at a hardware shop. A portion of such a ferrule projecting from a socket, appears in Fig. 1, at the right.

The tent proper was made from the same material used in my smaller tent, i. e. dark-green cambric or lining cloth which was purchased at 6 cts. a yard. About thirty yards 26 inches wide were used. I cut the cloth, pinning the sections together for the seamstress. The roof is in one section, which spreads slightly over the sides and ends of the tent. The angles were determined on cross section paper, and the material was cut into strips, three

to each side. The strips were sewed together with the seams parallel to the ground as may be seen in Fig. 2. When complete, the tent made a huge four cornered sack with two sides not sewed together half way from the bottom to the roof in order to provide an entrance, (see Fig. 2).

All of the seams were sewed twice, and the edges of all openings were hemmed. Tapes were sewed to the edges of the entrance for closing it. A deep hem was made at the bottom to hold bamboo anchoring poles which also served to hold the cloth in position. Openings were made in convenient positions for observation and camera work as may be seen in Fig. 2. These are closed by cloth doors which are fastened on the inside by hooks and eyes of the largest size. There is also an opening about six inches square, in the roof near one end, for ventilation. The whole outfit is packed into a long narrow box of suitable size and strength for transportation.

When the tent is to be set up, a site is chosen carefully with relation to the position of the sun at various times of the day, the direction of the wind, and of course the material to be studied The roof poles are first inserted in the corner sockets and then the uprights. After the frame is properly erected, the tent is slipped over it. A certain amount of latitude in locating the lower ends of the upright poles is permitted, and they are spread until the cloth is taut. The bottom anchoring poles are inserted and are anchored at their protruding ends with stakes or with rocks where stakes cannot be used. I have often used drift wood on a beach, instead of rocks.

After all outside work is done, I go inside with my equipment, *i. e.* cameras, etc., and arrange the interior. Even though a strong wind may not occur at the time, one may arise before the day's work is done, and it is wise to be prepared for a possible heavy strain upon the light tent frame, so reinforcing lines are arranged. Strong twine (shade cloth is good) must be used, and three lines are kept permanently tied to each corner piece. These lines are stretched under tension diagonally to screw eyes on the upright poles, so that they lie close to the cloth and do not cross any observation openings. One runs diagonally across the roof to the opposite corner piece. If the tension of all the lines is sufficient,

they help greatly in holding the tent in shape during a strong wind. In a stiff breeze, there is considerable bellying of the cloth on the windward side, but with so much space inside this is not serious.

The tent is six and one half feet high which accommodates most men in the erect position even with a hat. It is five and one half feet wide and seven feet long, at the ground. The four upright poles are six feet, eight inches long. The two end bottom poles are six feet long and the side bottom poles eight feet. The end roof poles are two feet six inches long, and the side roof poles are four feet long.

The usual method of entering the tent with a companion who may emerge at once and go away with any boat or vehicle used in transportation is always followed. I have never known this procedure to fail to deceive birds. They show vastly less concern than when there is no companion to leave the tent and the vicinity.

It is possible to see a good deal through the tent cloth without being visible from outside, and one may look through the openings rather freely without being noticed by birds. For a more complete discussion of the behavior of birds about a tent, and for various details in its use, the reader is referred to my paper on the behavior of the Herring Gull.

Professor Reighard of the University of Michigan spent two days with me in this tent during July, 1913, and he appears standing beside it in Fig. 2. This picture was made at Muskeget Island off the Massachusetts coast. We were comfortable and had abundant space for work. He has made some improvements in the line of portability which he has kindly described for me to publish with this account. The corner pieces are of aluminum and are made extra strong. The longer poles are provided with brass socket and ferrule joints so that no pole piece is over four feet long. He writes that "the whole outfit is compact and can be carried in a canvas bag with a handle like a valise."

FIELD NOTES ON THE SERIEMA (*CHUNGA BURMEISTERI*).

BY HOWARTH S. BOYLE.

ON October 21, 1914, Mr. Leo E. Miller and the writer left New York for South America on an extended collecting and exploring trip of two years. Collections were made in various parts of Colombia, Bolivia and the Argentine. It was in the sandy wastes of the latter country that the Seriema was found and its habits observed.

Lavalle, 1800 feet, our collecting station, was about seven hours by train south of Tucuman, the capital of the Argentine state of that name.

The soil, for the most part, is very dry and affords little opportunity for cultivation. Thorn bushes and stunted trees form the main growth which, in some places, is really very dense and all but impregnable. Water is scarce, though there are several small, artificial ponds used mostly by cattle. The railroad furnishes water to the few inhabitants once or twice daily.

Desert-like as it seemed, with its cactus, heat and dust, Lavalle proved to be an exceedingly interesting locality for collecting. Mammals were very abundant. Viscachas were so numerous as to be a pest; their huge and scattered runways were to be seen on all sides; living with them, in apparent harmony, were rabbits, foxes, skunks, cavies, owls, and boa constrictors.

It was in this type of country that we found this queer, long-legged runner, *Chunga burmeisteri*, or chuña, as the natives call it. Being unique, not only in its classification, but in appearance as well, this species as it skipped along a dusty trail only to disappear into the dense, brush patches at the slightest sign of danger, gave us at once not only an admiration for its beauty and grace, but a desire to know more concerning its secretive habits. The call-notes were a series of cries and yelps which were given in chorus; that is, one individual would start his queer, turkey-like yelps, while other birds joined in until four or five would be chanting at the same time. The volume of sound would then diminish and

the song end abruptly. We rarely saw more than one individual at a time. Apparently they move continuously, running away at the slightest sound; yet the word run can hardly be used in this connection, as there is no visible motion of the body, just a graceful glide, at once both swift and deceiving.

During the early evening is the best time to view them as they seem to frequent the larger and more open of the numerous cow-paths at this hour. They show great fondness for horses and cattle; benefiting, no doubt, by the insects which they disturb. On several occasions we had ample opportunity to observe solitary specimens which were kept by the natives as pets. It was most interesting to watch them feed. On giving one individual the body of a large bird, it attempted to swallow the meat whole, but without success; it then proceeded to tear the flesh by placing it under foot and using its bill, but even this failed; finally, taking the body firmly in its beak the bird ran a few paces, then reared to full height and brought the meat to the earth with considerable force; this was repeated until the entire amount was consumed. During the whole performance the head and neck feathers were raised and lowered in apparent anger.

The same individual was seen to perform what was either a dance or a fight. Nervously jerking its tail and uttering a short *cluck*, the bird ran forward with lowered head at a small tree. Suddenly stopping, it struck at the tree with both feet; this was repeated a number of times in rapid succession, and with great excitement. Then just as abruptly as it had started, the bird stopped, raced around the yard and returned once more to renew its queer antics.

In preparing the skins of our specimens, several interesting observations were made. There is, of course, no visible crop; the gizzard was exceedingly large and usually contained a varied assortment of food which, perhaps owing to the lack of water, was rather dry, and easily examined.

The gizzards of four specimens showed little or no variation; hard beetles, both large and small, together with large locusts, formed the greater portion of insect diet; green leaves and grasses with a small quantity of hard seeds made up the vegetable food; while in one specimen an entire rat, or young cavie, was found.

It might be interesting to note that we observed but few locusts in the field, perhaps proving that the Chuñas made special effort to secure them. I imagine that the examination of a large series of gizzard contents would reveal a great variety of food stuff.

The tame birds greedily ate the bodies of birds and rats, while one individual consumed small tacks and broken china without embarrassment. Of special interest perhaps was the finding of the double ovary in two of the specimens, while another female had but the usual single ovary.

It is difficult to estimate just how numerous these birds are. There is one section of the "Gran Chaco" of northeastern Argentina that is called "Campo de las Chuñas" where the natives go each year to secure the eggs of this bird for eating purposes. We believe these to be the same species as *Chunga burmeisteri;* the red-legged variety is said to live in the uplands and on the mountain slopes.

The flesh of this bird is very much esteemed by the natives, who, after carefully boiling the meat, make it into a stew and serve with potatoes, rice, raisins and a quantity of spice which forms quite a palatable dish and, after the usual diet of very young goat or kid, is a most welcome change.

THIRTY-TWO YEARS OF BIRD MIGRATION AT RALEIGH, NORTH CAROLINA.

BY C. S. BRIMLEY.

IN the spring of 1885, I first began to fill out migration schedules for the U. S. Biological Survey, and have kept up the habit every succeeding spring since, except in 1902, in which year I made observations, but lost my records, and the little data I have for that spring comes from the dates of a few skins which I collected then. The share others have had in the work is indicated at the end of Table I.

Not only have "arrivals" in spring been noted, but the "lasts"

of winter visitors also, though to a less extent. The fall migration has been taken note of as well, and quite full records have been made both of arrivals and "lasts" at that season from 1885 to 1894, and in 1907 and 1908, while considerable though less abundant observations have been made in nine other years.

I can generalize but little from my observations, the most positive deduction being that a wet spring is liable to be characterized by a comparative abundance of sandpipers and swallows. The weather also, particularly the prevailing temperature during the previous few weeks, has a great effect in hastening or delaying the arrival of the late March migrants, and to a lesser extent the arrival of those reaching us in April. Thus the year 1915, was unusually cold in March and early April, and the early migrants were unusually late, while the opposite was the case with the year 1890.

In making up the average dates for "first seen" and "last seen," abnormally early and later dates have been excluded, as well as those in a species must certainly have been here for some time before it was actually observed. As however, a bird cannot be observed until it is actually present, while it may be overlooked even though here, the average dates of "first seen" are undoubtedly to some extent later than the actual average date of arrival of the species, while the average dates of last seen are of course somewhat earlier, than the actual average dates of departure of the different species.

In all 165 species are included in the following tables, which are, I hope, self explanatory.

I. *Number of species observed in each year of observation.*

	Spring Migration			Autumn Migration		
Year	Arrivals	Lasts	Total	Arrivals	Lasts	Total
1885	59	21	80	36	22	58
1886	59	0	59	46	33	79
1887	67	20	87	44	42	86
1888	69	7	76	41	38	79
1889	65	8	73	37	31	68
1890	54	23	77	32	22	54
1891	59	1	60	33	30	63
1892	61	18	79	25	34	59
1893	53	23	76	50	39	89

Year	Spring Migration			Autumn Migration		
	Arrivals	Lasts	Total	Arrivals	Lasts	Total
1894	61	13	74	29	21	50
1895	42	27	69	31	1	32
1896	50	0	50	1	0	1
1897	50	0	50	5	0	5
1898	57	2	59	24	2	26
1899	39	0	39	15	1	69
1900	58	6	64	5	4	1
1901	41	0	41	—	—	—
1902	17	2	19	—	—	—
1903	35	0	35	—	—	—
1904	34	1	35	—	—	—
1905	28	2	30	15	0	15
1906	33	14	47	11	0	11
1907	54	16	70	17	19	36
1908	49	0	49	24	28	52
1909	55	18	73	—	—	—
1910	11	0	11	—	—	—
1911	45	13	58	11	2	13
1912	52	13	65	—	—	—
1913	12	0	12	—	—	—
1914	35	6	41	3	0	3
1915	68	18	86	6	2	8
1916	56	19	75		(not included)	

The preceding table contains the number of species observed in each year by my brother H. H. Brimley and myself up to about 1892, and from that time to 1916 by myself alone in most years, except that in the spring migration, Mr. S. C. Bruner's records constitute the greater part of the data for "arrivals" in 1908, 1912 and 1915, and more or less of the data for the same in 1907, 1911, and 1913, while he also gave me some autumn records in 1908. Mr. Z. P. Metcalf assisted me very considerably in the spring of 1911, and he and his assistants at the A. and M. College contributed about one half the data for the spring of 1916. Mr. Franklin Sherman and my brother have also contributed much data from time to time.

The autumn data, and the "lasts" of winter birds are almost exclusively my own, or in the earlier years mine and my brother's, but Mr. Bruner furnished a number of interesting "lasts" for the spring of 1915.

II. SUMMER VISITORS.

Note. The number of years in which the species has been observed in the spring and autumn is given in parentheses in those columns. The numbers following the average dates, indicate the number of years on which the average is based.

Name of Species	First Noted in Spring		Last Noted in Autumn	
	Earliest Date	Average	Average	Latest Date
Least Bittern	May 3,'89(3)	May 3(3)	.....	Sept. 11,'88(3)
Little Blue Heron (a)	June 21,'94(8)	July 8(7)	Aug. 15(4)	Aug. 21,'93(4)
Green Heron	Mch. 29,'93(22)	Apr. 9(21)	Sept. 3(9)	Oct. 2,'94(9)
King Rail (b)	.....	Mch. 28(7)	.....	Nov. 17,'92(3)
Spotted Sandpiper	Apr. 3,'93(26)	Apr. 14(18)	.....	Sept. 14,'86(4)
Broad-winged Hawk	Apr. 4,'98(6)	Apr. 8(4)	.....	Aug. 26,'89(1)
Yellow-billed Cuckoo	Apr. 26,'90(21)	May 5(21)	Oct. 7(9)	Oct. 17,'87(9)
Black-billed Cuckoo	Apr. 30,'00(4)	May 2(3)	Sept. 27(3)	Oct. 10,'91(4)
Chuck-wills-widow	Apr. 10,'90(7)	Apr. 22(7)	.....	Sept. 21,'03(10)
Whip-poor-will (c)	Mch. 31,'16(13)	Apr. 11(13)	Sept. 24(8)	Nov. 6,'94(8)
Nighthawk	Apr. 15,'87(9)	Apr. 27(5)	Sept. 26(9)	Oct. 6,'86(12)
Chimney Swift (d)	Apr. 3,'14(29)	Apr. 15(26)	Sept. 7(10)	Oct. 14,'15(10)
Ruby-throated Hummingbird	Apr. 10,'95(27)	Apr. 17(25)	Sept. 15(11)	Oct. 7,'07(11)
Kingbird	Apr. 12,'15(27)	Apr. 20(25)	Aug. 28(9)	Sept. 18,'93(9)
Crested Flycatcher	Apr. 9,'88&'08(29)	Apr. 18(28)	Sept. 17(9)	Sept. 28,,93(12)
Wood Pewee	Apr. 18,'10&'16(30)	Apr. 25(29)	Oct. 6(10)	Oct. 13,' 1(12)
Acadian Flycatcher	Apr. 20,'94(25)	Apr. 29(23)	Sept. 7(7)	Sept. 11,988(9)
Orchard Oriole	Apr. 16,'88(30)	Apr. 25(30)	Aug. 6(10)	Aug. 22,,'93(10)
Grasshopper Sparrow	Mch. 25,'97(18)	Apr. 19(10)	.....	Oct. 22,' 93(3)
Chipping Sparrow (e)	Feb. 23,'12(16)	Mch. 8(16)	Oct. 31(4)	Nov. 25,'88(4)
Bachman's Sparrow	Mch. 19,'87(11)	Apr. 5(7)	.....	Sept. 20,'01(1)
Blue Grosbeak	Apr. 25,'88&'16(24)	May 3(24)	Sept. 12(10)	Sept. 27,'87(10)
Indigo Bunting	Apr. 19,'12(27)	May 2(27)	Oct. 7(8)	Oct. 19,'07(9)
Summer Tanager	Apr. 6,'88(29)	Apr. 19(29)	Sept. 7(10)	Sept. 30,'86(11)
Purple Martin (f)	Apr. 8,'12(19)	Apr. 16(11)	Aug. 16(8)	Sept. 9,'97(8)
Rough-winged Swallow	Mch. 28,'08(26)	Apr. 6(18)	July 3(8)	July 17,'86&'08(8)
Red-eyed Vireo	Apr. 6,'88(30)	Apr. 17(30)	Oct. 9(8)	Oct. 16,'07(11)
Yellow-throated Vireo	Apr. 3,'88(32)	Apr. 14(32)	Sept. 1(10)	Sept. 16,'91(10)
Blue-headed Vireo (g)	Mch. 18,'90(23)	Mch. 28(20)	Oct. 28(12)	Nov. 15,'86(12)
White-eyed Vireo (h)	Mch. 24,'99(32)	Apr. 2(29)	Sept. 25(12)	Oct. 16,'07(12)
Black and White Warbler (i)	Mch. 19,'94(29)	Mch. 28(27)	Oct. 8(8)	Oct. 13,'86&'91(9)
Prothonotary Warbler	Apr. 18,'87(4)	Apr. 21(4)	Aug. 19(3)	Aug. 25,'87&'90(4)
Worm-eating Warbler	Apr. 19,'85&87(14)	Apr. 24(11)	Sept. 2(9)	Sept. 20,'93(9)
Parula Warbler	Apr. 1,'89(26)	Apr. 10(20)	Oct. 9(10)	Oct. 14,'90(12)
Yellow Warbler (j)	Apr. 5,'88(31)	Apr. 17(30)	Aug. 26(6)	Sept. 20,'01(6)
Yellow-throated Warbler	Mch. 13,'90(30)	Mch. 26(29)	Sept. 12(9)	Sept. 20,'01(12)
Prairie Warbler	Apr. 6,'93(29)	Apr. 15(29)	Sept. 4(10)	Sept. 20,'01(11)
Ovenbird (k)	Apr. 7,'92(30)	Apr. 17(27)	Oct. 12(9)	Oct. 23,'85(13)
Louisiana Water-Thrush (l)	Mch. 14,'08(28)	Mch. 29(23)	July 25(8)	Aug. 4,'88(8)
Kentucky Warbler (m)	Apr. 18,'10&'16(17)	Apr. 30(17)	Aug. 29(9)	Oct. 13,'98(9)
Maryland Yellow-throat (n)	Mch. 20,'94(30)	Mch. 28(30)	Oct. 13(8)	Oct. 24,'93(12)
Yellow-breasted Chat	Apr. 18,'88(29)	Apr. 25(29)	Aug. 8(8)	Sept. 13,'01(8)
Hooded Warbler	Apr. 6,'12(28)	Apr. 17(26)	Sept. 13 (8)	Oct. 1,'91(12)
Redstart	Apr. 4,'92(31)	Apr. 12(27)	Oct. 3(12)	Oct. 13,'86&'91(12)
Catbird (o)	Apr. 13,'16(31)	Apr. 20(30)	Oct. 17(11)	Nov. 17,'11(11)
Blue-gray Gnatcatcher	Mch. 16,'94(32)	Mch. 28(31)	Sept. 18(11)	Oct. 2,'86&'89(11)
Wood Thrush	Apr. 10,'93(30)	Apr. 18(30)	Oct. 1(10)	Oct. 16,'85(10)

Notes on preceding table of summer visitors.

(a). Little Blue Heron is a post breeding summer visitor.

(b). King Rail has been recorded on January 23, 1890, February 29, 1896, March 9, 1905, March 17, 1888, March 23, 1897 and March 30, 1896, so that although we are certain it is only a straggler in winter, we cannot tell which date should go on record as the earliest date of a summer bird.

(c). The next latest date for Whip-poor-will is October 10, 1885. Excluding the extra late date of November 6, 1894, the average latest is September 19.

(d). The first dates for Chimney Swifts fall into three groups, the first centering on April 6 (7 yrs.), the next on April 13 (9 yrs.), the last on April 22 (10 yrs.). The breeding birds come on the latter date.

(e). Chipping Sparrow once taken on December 29, 1890.

(f). Purple Martin once seen on March 16, 1907.

(g). Blue-headed Vireo on December 15, 1885, and January 3, 1891.

(h). White-eyed Vireo on March 3, 1890.

(i). Black and White Warbler once also on November 10, 1885.

(j). Yellow Warbler only occasional after August.

(k). A probably more nearly correct date for the arrival of the Ovenbird is obtained by taking the average of the 19 years giving earliest dates, which gives us April 13 for the average date of arrival.

(l). I have a single record of the Louisiana Water-Thrush for August 22, 1888, but it was "seen" and not taken, and I think was probably a Water-Thrush.

(m). Next latest for Kentucky Warbler, September 12, 1894.

(n). Maryland Yellow-throat also observed on December 6, 1889, January 8, 1891, January 30, February 4, 1890, and February 7, 1889.

(o). Catbird also seen on January 4, and February 17, 1887, and January 8 and 12, 1910.

III. TRANSIENTS.

Note. The letters "S" and "A" after the name of the species stand for spring and autumn respectively, the numbers after these letters are the number of years the species has been observed in these seasons, the numbers after the averages, the number of years on which the averages are in each case based.

Name of Species	First Seen		Last Seen	
	Earliest Date	Average	Average	Latest Date
Pied-billed Grebe, S(4)	Mch. 15,'99	.....	.....	Apr. 20,'09
" " A(2)	Aug. 7,'08	.....	.....	Sept. 30,'08
Loon, S(1)	Apr. 13,'97 only	.....	.....	.....
" A(2)	Nov. 17,'87	.....	.....	Dec. 9,'96
Black Tern, S(2)	Apr. 18,'07	.....	.....	May 10,'98
" " A(3)	July 28,'84	.....	.....	Sept. 23,'92
Blue-winged Teal, S(5)	Mch. 23,'88	.....	.....	May 6,'89
" " A(2)	Oct. 19,'88	.....	.....	Dec. 7,'93
Bittern (a), S(15)	Mch. 19,'08	Mch. 31(8)	.....	May 30,'93
Virginia Rail S(5)	Mch. 7,'91	Apr. 10(3)	May 3(3)	May 9,'00
" " A(2)	Sept. 8,'96	.....	.....	Oct. 9,'93
Sora Rail, S(10)	Apr. 8,'86	Apr. 22(8)	May 11(4)	May 13,'88&'89
" " A(6)	Aug. 21,'94	Aug. 29(3)	Oct. 13(5)	Oct. 17,'96
Coot, S(4)	Apr. 6,'98	.....	.....	May 16,'84
" A(5)	Oct. 28,'14	Nov. 5(4)	.....	Dec. 1,'82
Pectoral Sandpiper, S(8)	Mch. 22,'93	Mch. 27(5)	Apr. 8(5)	Apr. 15,'15
" " A(1)	Nov. 15,'94 only	.....	.....	.....
White-rumped Sandpiper, S(1)	May 22,'09	.....	.....	May 24,'09
Least Sandpiper, S(5)	Apr. 30,'85	May 2(2)	May 20(5)	May 24,'09
Semipalmated Sandpiper S(1)	May 22,'09 only	.....	.....	.....
Greater Yellow-legs, S(10)	Mch. 22,'93	Apr. 3(8)	May 8(4)	May 29,'88
Yellowlegs, S(10)	Mch. 25,'93	Apr. 3(5)	Apr. 30(4)	May 18,'88
Solitary Sandpiper, S(25)	Apr. 4,'89	Apr. 22(13)	May 17 (12)	May 25,'94
" " A(8)	July 14,'94	July 25(4)	Oct. 6(3)	Oct. 10,'93
Bartramian Sandpiper, S(9)	Mch. 28,'96	Apr. 6(6)	Apr. 24(4)	Apr. 30,'87
Semipalmated Plover, S(2)	May 5,'84	.....	.....	May 22,'09
Pigeon Hawk, S(3)	Apr. 19,'92	.....	.....	Apr. 29,'16
" " A(3)	Sept. 2,'10	.....	.....	Oct. 4,'14
Osprey, S(15)	Mch. 18,'11	Mch. 29(13)	Apr. 20(9)	May 6,'91
" A(1)	Aug. 25,'87 only	.....	.....	.....
Alder Flycatcher, S(1)	May 14,'92	.....	.....	May 16,'92
" " A(2)	Aug. 27,'98	.....	.....	Sept. 21,'93
Bobolink, S(24)	Apr. 19,'88	May 2(24)	May 23(5)	May 27,'87
" A(14)	Aug. 15,'93	Aug. 29(11)	Sept. 29(7)	Oct. 7,'96
Baltimore Oriole, S(3)	Apr. 26,'90	.....	.....	May 4,'15
" " A(3)	Aug. 31,'89	.....	.....	Sept. 17,'86
Rusty Blackbird, S(17)	Feb. 15,'90	Mch. 2(10)	Apr. 17(6)	Apr. 26,'87
" " A(12)	Oct. 17,'92	Oct. 28(8)	Nov. 17(8)	Dec. 16,'89
Bronzed Grackle, S(2)	Feb. 26,'95	.....	.....	Mch. 3,'93
" " A(6)	Nov. 5,'95	.....	.....	Dec. 11,'95
Henslow's Sparrow, S(7)	Mch. 18,'88	.....	.....	May 3,'01
Leconte's Sparrow, S(1)	Apr. 21,'94 only	.....	.....	.....
White-crowned Sparrow, S(1)	Apr. 14,'12 only	.....	.....	.....

Name of Species	First Seen		Last Seen	
	Earliest Date	Average	Average	Latest Date
Rose-breasted Grosbeak, S(7)	Apr. 22,'09	Apr. 27(4)	May 6(5)	May 8,'85&'97
Scarlet Tanager, S(20)	Apr. 19,'11	Apr. 30(20)	May 11(6)	May 14,'01
" " A(5)	Sept. 11,'86	Sept. 18(3)	Oct. 8(3)	Oct. 14,'91
Barn Swallow, S(22)	Apr. 2,'88	Apr. 10(13)	May 15(10)	May 25,'99
" " A(10)	Aug. 6,'99&'08	Aug. 9(10)	Aug. 30(9)	Sept. 16,'86
Cliff Swallow S(5)	Apr. 20,'11	.....	.....	May 9,'91
Tree Swallow S(16)	Mch. 12,'87	Apr. 4(12)	May 16(5)	May 30,'i86
" " A(1)	Sept. 7,'88	.....	.....	Oct. 13,'88
Bank Swallow, S(1)	Apr. 24,'88 only	.....	.....	.....
" " A(1)	Aug. 8,'94 only	.....	.....	.....
Blue-winged Warbler, S(3)	Apr. 26,'12	.....	.....	May 6,'07
" " A(3)	Aug. 20,'08	Aug. 22(3)	Aug. 29(3)	Sept. 4,'88
Brewster's Warbler, A(1)	Sept. 6,'88 only	.....	.....	.....
Golden-winged Warbler, S(2)	May 7,'89&'91 only	.....	.....	.....
" " A(2)	Aug. 26,'86	.....	.....	Aug. 30,'93
Tennessee Warbler, A(3)	Sept. 19,'89	.....	.....	Oct. 12,'87&'88
Cape May Warbler (b), S(5)	Apr. 7,'92	Apr. 30(3)	May 7(4)	May 9,'92&'11
" " " A(1)	Nov. 1,'11 only	.....	.....	.....
Black-throated Blue Warbler (c) S(25)	Apr. 6,'88	Apr. 26(25)	May 13(22)	May 19,'88&'09
Black-throated Blue Warbler (c) A(7)	Sept. 20,'93	Sept. 30(5)	Oct. 18(4)	Nov. 19,'86
Magnolia Warbler, S(4)	May 10,'89	.....	.....	May 15,'93
" " A(7)	Sept. 11,'89	Sept. 13(3)	Oct. 14(4)	Oct. 20,'90
Cerulean Warbler, S(1)	May 8,'93 only	.....	.....	.....
" " A(2)	Aug. 29,'89	.....	.....	Sept. 16,'87
Chestnut-sided Warbler, S(5)	Apr. 27,'86	.....	.....	May 15,'90
" " A(8)	Aug. 17,'91	Aug. 24(4)	Oct. 2(6)	Oct. 12,'91
Bay-breasted Warbler, S(1)	May 5,'15 only	.....	.....	.....
Black-poll Warbler, (d) S(22)	Apr. 16,'16	May 2(15)	May 26(9)	May 31,'92
" " A(10)	Sept. 24,'88	Oct. 2(8)	Oct. 21(9)	Nov. 5,'86
Blackburnian Warbler (c), A(7)	Aug. 25,'87	Aug. 31(3)	Oct. 3(7)	Oct. 13,'91
Black-throated Green Warbler, S(13)	Mch. 22,'96&'97	Mch. 28(10)	.....	May 11,'94
Black-throated Green Warbler, A(7)	Sept. 7,'91	Sept. 19(4)	Oct. 8(5)	Oct. 16,'93
Water-Thrush, S(17)	Apr. 18,'93	Apr. 27(15)	May 20(10)	May 28,'87
" " A(15)	July 25,'95	Aug. 3(7)	Sept. 29(9)	Oct. 6,'94
Connecticut Warbler, A(3)	Oct. 13,'98	.....	.....	Oct. 24,'96
Wilson's Warbler, S(4)	May 11,'93	.....	.....	May 19,'15
Canadian Warbler S(2)	May 13,'92	.....	.....	May 18,'12
House Wren (f) S(18)	Apr. 10,'93	Apr. 20(16)	Apr. 30(9)	May 4,'85
" " A(10)	Sept. 21,'08	Sept. 25(5)	Oct. 11(5)	Oct. 16,'88
Short-billed Marsh Wren, S(1)	May 4,'92 only	.....	.....	.....
" " " A(2)	Aug. 10,'94	.....	.....	Sept. 20,'93
Long-billed Marsh Wren(g),S(10)	Apr. 21,'92	Apr. 26(5)	May 5(6)	May 7,'05
" " " A(3)	Sept. 20,'92	Sept. 22(3)	.....	Oct. 19,'92
Wilson's Thrush, S(15)	Apr. 23,'85	Apr. 29(9)	May 8(5)	May 9,'85, '91,'92
" " A(6)	Aug. 28,'88	Sept. 1(4)	Sept. 14(3)	Sept. 18,'90
Gray-cheeked Thrush, S(8)	May 4,'94	May 6(3)	May 16(5)	May 24,'92
" " A(4)	Oct. 2,'88	.....	.....	Oct. 12,'88
Bicknell's Thrush, S(3)	May 3,'94	.....	.....	May 18,'89
" " A(2)	Sept. 24,'87	.....	.....	Oct. 12,'87
Olive-backed Thrush, S(13)	Apr. 22,'92	Apr. 29(8)	May 12(6)	May 17,'93
" " A(4)	Sept. 26,'87	Oct. 3(3)	Oct. 16(3)	Oct. 21,'85

Notes on preceding Table.

(a). Bittern once on December 7, 1886.

(b). Except for the one taken on April 7, 1892, all the dates for Cape May Warbler fall on or after April 27.

(c). The earliest date April 6, 1888, is abnormally early for Black-throated Blue Warbler. Next earliest is April 14 of same year, and the next April 17, 1894.

(d). Next earliest date for Black-poll Warbler is April 26, 1912.

(e). In 1906 the Blackburnian Warbler was taken in the adjoining county of Durham on May 3, and October 24, by Ernest Seeman.

(f). I have an extra early date of April 1, 1887, for House Wren, but the bird was seen, not taken, and now think it was a mistake.

(g). Long-billed Marsh Wren also on January 14, 30, 1890, March 13, 18, 1889, and March 17, 1888.

IV. WINTER VISITORS.

The numbers after the dates have the same meaning as in the case of Summer Visitors.

Name of Species	First Seen		Last Seen	
	Earliest Date	Average	Average	Latest Date
Hooded Merganser	Nov. 4,'88(1)	.....	.....	Jan. 31,'08(1)
Mallard	Nov. 6,'85, '95(6)	Nov. 10(5)	Mch. 31(5)	Apr. 7,'85(5)
Black Duck	Dec. 1,'94(1)	.....	Apr. 6(3)	Apr. 11,'95(5)
Baldpate	Nov. 12,'91(1)	.....	.....	Apr. 26,'92(1)
Green-winged Teal	Dec. 1,'88(2)	.....	.....	Apr. 13,'00(4)
Lesser Scaup Duck	.....	.....	.....	Mch. 28,'08(3)
Wilson's Snipe (a)	Sept. 20,'03(10)	Oct. 26(9)	Apr. 18(14)	Apr. 28,'98(17)
Marsh Hawk	Aug. 15,'96(11)	Sept. 12(5)	Apr. 15(7)	Apr. 29,'87(7)
Long-eared Owl	Dec. 11,'93(2)	Dec. 13(2)	Feb. 22(2)	Feb. 24,'10(3)
Short-eared Owl	Nov. 8,'87(8)	Nov. 23(6)	Jan. 18(4)	Feb. 9,'10(4)
Saw-whet Owl	Dec. 4,'97(3)	.....	.....	Dec. 18,'94
Yellow-bellied Sapsucker	Sept. 27,'87(15)	Oct. 10(12)	Apr. 14(7)	Apr. 29,'87(12)
Horned Lark	Dec. 7,'86(1)	.....	.....	Feb. 20,'95(2)
Prairie Horned Lark	Dec. 7,'86(1)	.....	.....	Feb. 20,'95(2)
Cowbird (b)	Sept. 4,'90(10)	Oct. 17(5)	Apr. 3(9)	Apr. 29,'90(9)
Meadowlark (c)	Aug. 8,'87(18)	Oct. 7(10)	Apr. 20(7)	Apr. 29,'87(10)
Purple Grackle (d)	Oct. 26,'93(12)	Nov. 1(11)	Apr. 15(7)	May 8,'86(13)
Purple Finch	Oct. 28,'89(10)	Nov. 4(10)	Apr. 17(8)	Apr. 30,'90(11)
Pine Siskin	Nov. 3,'86(6)	Nov. 21(6)	May 2(4)	May 11,'11(6)
Lapland Longspur	Jan. 13,'93(2)	.....	.....	Feb. 20,'95
Vesper Sparrow (e)	Oct. 11,'93(12)	Oct. 20(12)	Apr. 12(9)	Apr. 19,'07(13)
Savannah Sparrow	Sept. 16,'87(13)	Oct. 11(13)	May 6(8)	May 13,'16(17)

Name of Species	First Seen		Last Seen	
	Earliest Date	Average	Average	Latest Date
White-throated Sparrow	Oct. 4,'88(19)	Oct. 16(19)	May 12(9)	May 19,'15(15)
Slate-colored Junco	Oct. 23,'86(15)	Oct. 31(15)	Apr. 12(13)	Apr. 24,'07(14)
Song Sparrow (f)	Oct. 2,'91(18)	Oct. 13(18)	Apr. 4(14)	Apr. 28,'15(14)
Swamp Sparrow	Oct. 10,'88(13)	Oct. 21(11)	May 11(11)	May 19,'93(15)
Fox Sparrow (g)	Oct. 17,'93(12)	Nov. 15(11)	Mch. 15(9)	Apr. 6,'15(9)
Towhee (h)	Oct. 4,'89(13)	Oct. 11(12)	Apr. 30(16)	May 10,'11(16)
Migrant Shrike (i)	Aug. 18,'88 (21)	Sept. 3(14)	Mch. 25(4)	Apr. 1,'15(7)
Myrtle Warbler	Oct. 11,'86(15)	Oct. 17(13)	May 4(17)	May 18,'93(18)
Yellow Palm Warbler (j)	Sept. 16,'86(12)	Oct. 7(8)	Apr. 19(12)	May 1,'93(18)
Pipit (k)	Oct. 17,'87(6)	Oct. 24(6)	Mch. 22(6)	Apr. 6,'15(6)
Bewick's Wren	Sept. 24,'05(9)	Oct. 18(7)	.....	Apr. 3,'09(1)
Winter Wren	Sept. 26,'87(17)	Oct. 11(13)	Apr. 14(11)	Apr. 23,'90(13)
Brown Creeper	Oct. 3,'88(13)	Oct. 10(10)	Apr. 10(12)	Apr. 19,'15(14)
Red-breasted Nuthatch	Sept. 13,'86(10)	Oct. 7(9)	Mch. 30(4)	Apr. 10,'97(4)
Gold-crowned Kinglet	Oct. 7,'89(14)	Oct. 15(13)	Apr. 5(8)	Apr. 19'07(8)
Ruby-crowned Kinglet (l)	Oct. 1,'88(20)	Oct. 16(19)	Apr. 20(18)	May 10,'10(18)
Hermit Thrush	Oct. 16,'88(14)	Oct. 21(11)	Apr. 18(19)	Apr. 29,'92(20)

Notes on preceding Table.

(a). Wilson's Snipe is mainly a spring migrant.

(b). Cowbird is commonest in spring migration and has been scarcer of late years.

(c). Meadowlark has been observed June 1, 1913, at Morrisville this county and at Raleigh, June 4, 1916, so is presumably a scarce breeder in this vicinity.

(d). Purple Grackle also taken on June 16, 1891. It is commonest during the migrations.

(e). Vesper Sparrow also recorded by me on May 11, 1893, but now think I made a mistake in the identification.

(f). Second latest date for Song Sparrow is April 11, 1890.

(g). Second earliest date for Fox Sparrow is November 3, 1886.

(h). Towhee is commonest in migrations.

(i). Migrant Shrike is commonest in autumn, scarcest in spring. I have an old record of May 6, 1887, but now think it was a case of mistaken identity.

(j). Yellow Palm Warbler is rare and irregular in winter. March 31 is the average of nine years of late March and early April dates and may indicate average arrival of transients.

(k). Pipit also recorded for May 5, 1887, but think it a case of mistaken identity.

(l). Next latest date for Ruby-crowned Kinglet is April 28, 1887.

V. STRAGGLERS AND SPECIES OF UNCERTAIN STATUS.

Horned Grebe. January 14, 1909, one taken.

Sooty Tern. July 1, 1909, one male taken.

White Pelican. May 12, 1884, one taken.

Baldpate. November 12, 1891, April 26, 1892.

Shoveller. March 31, 1902, a pair seen.

Bufflehead. December 16, 1893, a female taken.

Old-squaw. January 14, 1910, one taken.

Wood Ibis, July 4, 1884, one taken.

Egret. July 15, 1884, one taken.

Black-crowned Night Heron. April 6, 1915, one taken, April 9, 1916, one seen.

Yellow-crowned Night Heron. June 25 and July 14, 1894, two immature birds taken. April 4, 1911, four adults seen. April 2, 8, 16, 1915, seen.

Black Rail. Two taken June 8, 1892. Eggs taken on eight different occasions, in six different years between 1889 and 1902, and on dates ranging from May 27 in 1889 to July 12, in 1894.

Purple Gallinule. One seen June 3, 1887, one taken three days later.

Florida Gallinule. April 20, 1907, one brought alive to S. C. Bruner. May 30, 1916, one brought alive to myself.

Dowitcher. July 29, 1884, one taken.

Ruff. May 6, 1892, female taken.

Passenger Pigeon. April 18, 1891, one seen.

Barn Owl. January 17, 1896, January 5, 1900, specimens taken.

Bald Eagle. August 24, 1893, adult seen.

Red-cockaded Woodpecker. April 22, 1890, April 16, 1897, April 20, 28, 1898, also taken at least once in winter by Bruner.

Crossbill. March 11, 23, 1885, June 5, 1887, January 16, 26, February 8, 1897, May 9, 1907. Specimen taken on the last date by Bruner, and others on the other dates by myself.

White-winged Crossbill. Three taken by Bruner on February 23, 1907.

Bachman's Warbler. April 27, and May 22, 1891, two males taken.

VI. SPRING TRANSIENTS AND SUMMER VISITORS.

Arranged in order of their average date of arrival (first seen).

March 2. Rusty Blackbird.
8. Chipping Sparrow.
26. Yellow-throated Warbler.
27. Pectoral Sandpiper.
28. King Rail, Blue-headed Vireo, Black and White Warbler, Black-throated Green Warbler, Maryland Yellow-throat, Blue-gray Gnatcatcher.
29. Osprey, Louisiana Water-Thrush.
31. Bittern.

April 2. White-eyed Vireo.
3. Yellow-legs, Greater Yellow-legs.
4. Tree Swallow.
5. Bachman's Sparrow.
6. Rough-winged Swallow, Bartramian Sandpiper.
8. Broad-winged Hawk.
9. Green Heron.
10. Barn Swallow, Parula Warbler, Virginia Rail.
11. Whip-poor-will.
12. Redstart.
14. Yellow-throated Vireo, Spotted Sandpiper.
15. Chimney Swift, Prairie Warbler, Purple Martin.
16. Ruby-throated Hummingbird, Red-eyed Vireo, Yellow Warbler, Ovenbird, Hooded Warbler.
18. Crested Flycatcher, Wood Thrush.
19. Grasshopper Sparrow, Summer Tanager.
20. House Wren, Kingbird, Prothonotary Warbler, Catbird.
22. Chuck-wills-widow, Sora, Solitary Sandpiper.
24. Worm-eating Warbler.
25. Wood Pewee, Orchard Oriole, Yellow-breasted Chat.
26. Long-billed Marsh Wren, Black-throated Blue Warbler.
27. Rose-breasted Grosbeak, Water Thrush.

29. Acadian Flycatcher, Olive-backed Thrush, Wilson's Thrush.
30. Scarlet Tanager, Cape May Warbler, Kentucky Warbler.

May 2. Least Sandpiper, Bobolink, Indigo Bunting, Black-poll Warbler, Black-billed Cuckoo.
3. Blue Grosbeak.
5. Yellow-billed Cuckoo, Least Bittern.
6. Gray-cheeked Thrush.

VII. Autumn Transients and Winter Visitors.

Arranged in order of average arrival (first seen).

July 25. Solitary Sandpiper.
August 3. Water-Thrush.
9. Barn Swallow.
22. Blue-winged Warbler.
24. Chestnut-sided Warbler.
25. Blackburnian Warbler.
29. Sora, Bobolink.
September 1. Wilson's Thrush.
3. Migrant Shrike.
12. Marsh Hawk.
13. Magnolia Warbler.
18. Scarlet Tanager.
19. Black-throated Green Warbler.
22. Long-billed Marsh Wren.
25. House Wren.
30. Black-throated Blue Warbler.
October 2. Black-poll Warbler.
3. Olive-backed Thrush.
7. Meadowlark, Red-breasted Nuthatch, Yellow Palm Warbler.
10. Brown Creeper, Yellow-bellied Sapsucker.
11. Savannah Sparrow, Towhee, Winter Wren.
13. Song Sparrow.
15. Gold-crowned Kinglet.

October 16. White-throated Sparrow, Ruby-crowned Kinglet.
17. Cowbird, Myrtle Warbler.
18. Bewick's Wren.
20. Vesper Sparrow.
21. Swamp Sparrow.
24. Pipit.
26. Wilson's Snipe.
28. Rusty Blackbird.
31. Slate-colored Junco.
November 2. Purple Grackle.
4. Purple Finch.
10. Mallard.
15. Fox Sparrow.
21. Pine Siskin.
23. Short-eared Owl.

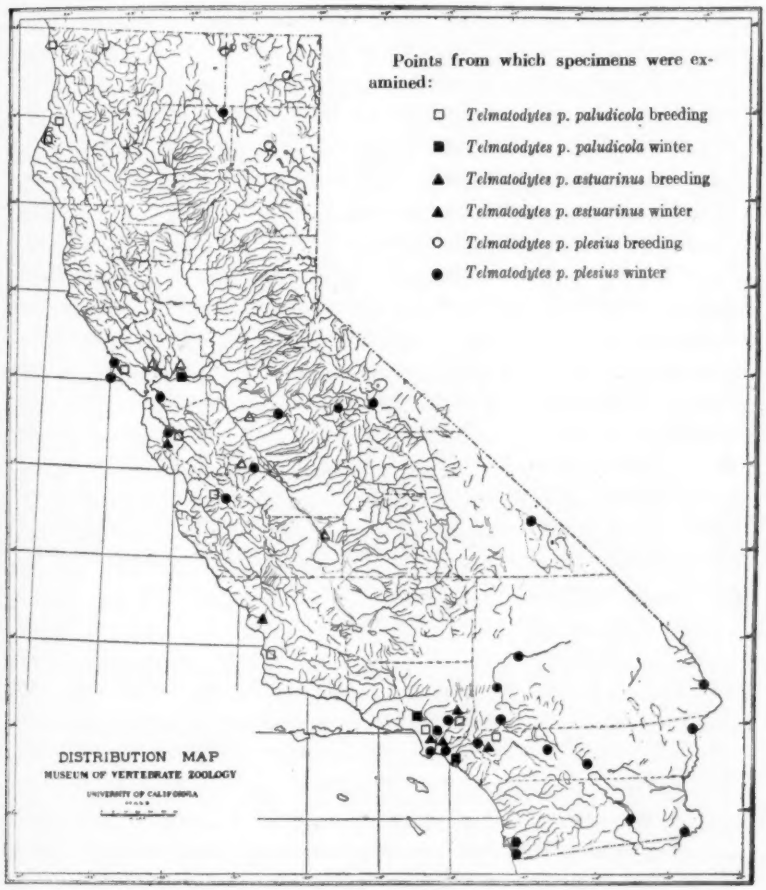
A REVISION OF THE MARSH WRENS OF CALIFORNIA.[1]

BY HARRY S. SWARTH.

AN extensive series of marsh wrens from the delta region east of San Francisco Bay has been accumulated in the California Museum of Vertebrate Zoölogy, chiefly through the personal efforts of Misses Annie M. Alexander and Louise Kellogg. The appearance of these birds contrasts so strongly with specimens available from other parts of California that it has seemed desirable to make a careful study of their systematic status. With this object in view, as many specimens as possible have been assembled illustrative of the Long-billed Marsh Wren (*Telmatodytes palustris*) upon the Pacific Coast, especially in California. Although each of the several collections examined or appealed to contained but a meager representation of the species, still, by assembling material

[1] Contribution from the University of California Museum of Vertebrate Zoölogy.

from many sources, and for the use of which specific acknowledgment is made beyond, a total of 239 skins became available. This series, while still leaving gaps to be filled before any precise plotting of breeding ranges can be made, is more than any previous student



Distribution in California of the subspecies of *Telmatodytes palustris.*

of the subject has had at his disposal, and is sufficient to indicate that there are three, instead of two, distinguishable subspecies in California. It also suffices to indicate with a fair degree of accuracy

the summer and winter distribution of these three races within the State.

The greater part of the series under consideration is from the Museum of Vertebrate Zoölogy, including, besides the State collection, the Grinnell, Morcom, and Swarth collections. This, however, although by far the most extensive series available from any one source, still left much to be desired in the way of adequate material from certain regions. The loan of specimens from other collections has filled these gaps to some extent. The collections in the Los Angeles County Museum of History, Science and Art, were at the writer's disposal, including the Daggett, Richardson, Willett, Lamb and Law collections, which are housed there. To the United States National Museum, through Dr. C. W. Richmond, Assistant Curator of Birds, the writer is indebted for the loan of certain specimens, particularly the type of Baird's "*Cistothorus palustris*, var. *paludicola*." Other institutions which generously responded to requests for the loan of material were the Biological Survey of the United States Department of Agriculture, the University of Oregon, and the Oregon State Fish and Game Commission. Messrs. Joseph and John W. Mailliard, A. B. Howell and L. E. Wyman also kindly permitted the use of the specimens contained in their several collections. To each of these institutions and individuals the writer wishes to express his sense of obligation, and his appreciation of the aid afforded.

Telmatodytes palustris æstuarinus, new subspecies.

Type.— No. 25349, Museum of Vertebrate Zoölogy; adult male; Grizzly Island, Solano County, California; April 17, 1915; collected by J. Grinnell; original number, 3152.

Subspecific characters.— In coloration *æstuarinus* is darker than the average of *paludicola*, especially as compared with southern Californian examples of the latter. Occasional specimens of *paludicola*, however, from all parts of its range, are quite as dark colored. In dimensions, *T. p. æstuarinus* differs from *T. p. paludicola* in its greater size throughout, being of about the same dimensions as *T. p. plesius*. From *plesius* it differs in its much darker coloration.

Specimens examined from the following localities.— California. Solano County: Cordelia Slough, 7; Grizzly Island, 3; Suisun, 18. Sonoma County: Second Napa Slough, 3. Santa Clara County: Palo Alto, 1.

Los Angeles County: El Monte, 1; San Gabriel River, 1; Los Angeles, 4; Bixby, 1. Riverside County: Corona 1. San Luis Obispo County: San Luis Obispo, 1. Merced County: Los Baños, 15. Kings County: Tulare Lake, 1.

Oregon: Netarts, 1; Elmira, 1; Eugene, 1.

Total, 60.

Remarks.— The characteristics of the bird and mammal fauna of the San Francisco Bay region have been set forth by Grinnell (Univ. Calif. Publ. Zoöl., vol. 10, 1913, pp. 191–194) in a concise summary of conditions at that point, so that there is no need here of dwelling further upon the topic. In the paper cited the possibility is pointed out of the marsh wren of this region proving to be different from the recognized Pacific Coast races, a statement that is borne out by the present study.

The naming of this form of *Telmatodytes palustris* adds another to the five distinctive species of vertebrates already known from the Suisun region, giving added emphasis to the strongly marked faunal peculiarities of the section. The characteristics of the marsh wren are again exactly such as occur in the song sparrow, meadow mouse, and shrew of the same locality and association, namely, an extreme of dark coloration and maximum of size as compared with those forms most nearly related and geographically closely adjacent. The wren is not so closely circumscribed in its habitat as are the song sparrow, meadow mouse, and shrew, its breeding range including at least a part of the San Joaquin Valley. This is shown by fifteen specimens at hand taken at Los Baños, Merced County, in June, four of which are adults and eleven juvenals. The four adults are in excessively worn plumage, but though color characteristics are obscured thereby, measurements of these birds accord so closely with those of Suisun specimens as to leave no doubt as to the subspecific identity of the two series. The young birds also are appreciably larger than full-feathered juvenals of *paludicola* from Humboldt Bay. Three non-breeding birds from Modesto, Stanislaus County, while not extreme examples of *æstuarinus*, are apparently to be referred to this form rather than *paludicola*. A juvenal from Tulare Lake is not with certainty identifiable, but I have tentatively referred it to *æstuarinus*, regarding it as probable that this form inhabits the entire San Joaquin Valley.

Whether the breeding ground also extends northward in the Sacramento Valley, remains to be demonstrated. Three winter birds at hand from the coast of Oregon, apparently referable to *æstuarinus*, point to the possibility of a breeding ground farther north and nearer the point of capture than is the Suisun region. Of these three specimens just one is fairly typical of *æstuarinus* in appearance, the others tending toward *paludicola*. Possibly all three are merely variants of the latter race, showing individual variation towards *æstuarinus*.

There are also at hand, as listed above, a few individuals apparently of this race, from Palo Alto, San Luis Obispo, and various points in the San Diegan region, taken from October to December. This is indicative of a slight migratory movement, or rather a scattering of individuals slightly beyond the breeding confines. Certain of the specimens from the San Diegan region are not absolutely typical, and may be representative of the form as it occurs in the southern San Joaquin Valley.

Conditions on the Pacific Coast are such as to render it not so much a matter of surprise that three races of marsh wren should now be recognized from California, as that the species should not be found to have split up into a greater number of forms. Suitable breeding grounds for birds of this nature are limited in area and isolated at widely separated points. The Pacific Coast marsh wrens, with the exception of *plesius*, are not markedly migratory in habit, and it would seem fair to suppose that these several factors would produce more conspicuous results in differentiation of races than has actually taken place. On the Atlantic Coast of the United States less apparent differences of environment, in a region otherwise not noticeably productive of geographical variants, are accompanied by strikingly differentiated local races of the same species.

Telmatodytes palustris paludicola (Baird).

Type locality.— Shoalwater Bay, Washington.

Range in California.— Resident locally in marshy tracts. In northern California, the region west of the coast ranges; south of San Francisco Bay, along the coast, in the Santa Cruz and San Diegan regions, probably to the Mexican boundary line. There are no specimens of this subspecies at hand

from the Colorado or Mohave desert regions which would serve to indicate seasonal migrations to these points.

Specimens examined from the following localities.— California. Los Angeles County: Los Angeles, 5; Nigger Slough, 3; Torrance, 1; Garnsey, 1; El Monte, 9; Long Beach, 2; Bixby, 3. Orange County: Sunset Beach, 1. Riverside County: Riverside, 2. Santa Barbara County: Guadalupe Lake, 1. San Benito County: Paicines, 3. Stanislaus County: Modesto, 3. Alameda County: San Lorenzo, 2; Berkeley, 1. Santa Clara County: Palo Alto, 15. San Mateo County: San Mateo, 1. Marin County: Head of Limantour Bay, 2; Point Reyes, 2; Bolinas, 1. Sonoma County: Santa Rosa, 1. Solano County: Suisun Marsh, 1; Grizzly Island, 2; Cordelia Slough, 1. Humboldt County: Humboldt Bay, 1; Eureka, 3; Arcata, 1. Del Norte County: Crescent City, 3.

Oregon: Netarts, 2.

Washington: Shoalwater Bay, 1. Seattle, 2. South Tacoma, 1.

Total, 77.

Remarks.— But a cursory examination of the material assembled for the present study was necessary to demonstrate that there were three types represented therein, separable with a fair degree of ease and certainty. The specimens of *plesius* disposed of, there remained the two dark colored coastal races, with the attendant problem as to which of them should bear the name *paludicola*. By the courtesy of the United States National Museum, through Dr. C. W. Richmond, I was enabled to examine Baird's type of *Cistothorus palustris*, var. *paludicola*, indispensable for a proper understanding of the question. There are also at hand, received from the collection of the above mentioned institution and from those of the Oregon State University and the Oregon State Fish and Game Commission, some additional skins from the coast of Oregon and Washington, in the same general region as the type locality of *paludicola*.

While there is no doubt as to the distinctness of the two dark-colored coastal races here recognized, for the differences are trenchant enough to be appreciable at a glance, the nature of the type of *paludicola* makes it difficult to decide as to which of the two is the unnamed form. The type specimen of *paludicola* is a non-sexed bird taken October 31, a date that renders it possible at least that it was a winter visitant at the point of capture (Shoalwater Bay, southern Washington), and not representative of the breeding bird of that region. In size it is somewhat larger than the average

of the subspecies as here recognized, and tends accordingly towards *æstuarinus* in appearance. Judging from the appearance of this specimen, the suggestion arose of the probable division of the Pacific Coast marsh wren into two races, northern and southern; one of the two, a larger form, *paludicola*, in the north, south to San Francisco Bay and the Suisun region; the other, a smaller, unnamed race, along the southern coast district. This was the writer's first idea of the state of affairs; but breeding birds which became available from scattered points along the entire coast from Washington to southern California, demonstrated the essential unity of the series, though with an appreciable diminution in size southward. (Most breeding birds from the San Diego region are decidedly smaller than any from other points.)

Telmatodytes palustris plesius (Oberholser).

Type locality.— Fort Wingate, New Mexico.

Range in California.— Breeds in the northeastern corner of the State (the Modoc or Great Basin faunal area). There are breeding birds at hand from the following localities: Pit River near Alturas, Tule (= Rhett) Lake, and Eagle Lake. One from Fort Crook may or may not be a breeding bird. There are no data to indicate whether or not any individuals of this race remain through the winter on the breeding grounds. The subspecies is abundant in winter in suitable spots on the Colorado and Mohave deserts; it also occurs in large numbers in the San Diegan region, and in much lesser numbers in the San Joaquin Valley and northward along the coast as far as Marin County.

Specimens examined from the following localities.— California: Imperial County: Fort Yuma, 5; Brawley, 1. San Diego County: Tia Juana River, 1; San Diego, 1. Riverside County: Mecca, 7; Palm Springs, 2; Riverside Mountain, 1; Lower Chemehuevis Valley, 1; Corona, 2. San Bernardino County: Yermo, 3; Victorville, 4; San Bernardino, 1. Los Angeles County: Long Beach, 4; Bixby, 4; San Pedro, 1; Alamitos, 1; El Monte, 2; Los Angeles, 7; Pasadena, 2; Nigger Slough, 1. Inyo County: Death Valley, 1. Mono County: Gem Lake, 1. Mariposa County: Yosemite Valley, 1. Stanislaus County: La Grange, 1. San Benito County: Paicines, 1. Santa Clara County: Palo Alto, 2. Merced County: Los Banos, 1. Alameda County: Berkeley, 1. Marin County: Point Reyes, 1; Tomales Point, 1. Lassen County: Eagle Lake, 1. Shasta County: Fort Crook, 1. Siskiyou or Modoc County: Tule (= Rhett) Lake, 2. Modoc County: Alturas, 2.

Oregon: Burns, 1; Camp Harney, 1; Fort Klamath, 2; Corvallis, 1.

Nevada: Lovelock, 1; Quinn River Crossing, 1.
Idaho: Nampa, 6.
British Columbia; Cariboo Road, 1.
Total, 82.

Remarks.— The known breeding range of the western marsh wren in California is very limited, being merely the restricted northeastern corner of the State, a region which shows strongly Great Basin faunal affinities. In winter, however, *plesius* is perhaps the most abundant of any form of the species, occurring in numbers over a large part of the state. It is an especially numerous winter visitant in the San Diegan district of southern California. In this region summer is the dry season, a period of such excessive aridity that birds with the needs and proclivities of the marsh wrens are closely limited as to habitat, being restricted to extremely circumscribed areas about the few suitable permanent streams and sloughs. In winter this is all changed. Abundant rains often transform what were dry fields and pastures into ponds and marshes, while every roadside ditch is running full, and bordered with dense vegetation. In consequence, the visiting marsh wrens are enabled to scatter widely over the country. It may be that the resident birds even at this time adhere somewhat closely to their restricted summer habitat, but, however that may be, it is the writer's experience that in southern California indiscriminate winter collecting of marsh wrens in the places where they are most easily obtained, will produce several examples of *plesius* to one of the resident *paludicola.*

Going northward in California there is a great and abrupt lessening of numbers of the subspecies *plesius* as the San Diegan region is left behind. There are a few specimens at hand from various scattered points: One from Los Baños, in the central San Joaquin Valley; one from Paicines and two from Palo Alto, from the coast region south of San Francisco Bay; one from Berkeley; two from Point Reyes and Tomales Point, Marin County. It is worth noting that there is not a single example of this subspecies in the extensive series of marsh wrens collected in the Suisun region. These facts are clearly illustrative of the winter range of *plesius* in California, with its metropolis in the southern end of the state (both on the deserts and in the San Diegan region) and with

scattering individuals occurring northward in the San Joaquin Valley and along the coast at least as far as Marin County. The presence in the series from Oregon, however, of a typical example of *plesius* (a winter bird) from Corvallis, in the northern coast region of this state (University of Oregon Mus. No. 1081) shows that individuals of this form may occasionally be found in winter at any point along the coast.

The subspecies is generally regarded as a winter visitant, only, on the Colorado Desert (see Grinnell, Univ. Calif. Publ. Zoöl., vol. 12, 1914, p. 211), as in the San Diegan region, but there is one specimen in the Morcom collection collected at Fort Yuma on May 7, a date which suggests the possibility, at least, of its being a breeding bird. The extensive series from southern California contains few specimens which are helpful in determining average dates of arrival and departure, most of them having been taken from November to February. The earliest date represented is for a specimen from San Pedro, October 3, but it seems probable that the species arrives in southern California some weeks earlier. The latest date from southern California, aside from the Fort Yuma example above mentioned, is from Mecca, about the center of the Colorado Desert, April 17.

The series of *plesius* here assembled exhibits a rather wide range of variation, both as to color and size, so much so as to suggest the possibility of more than one recognizable form being included under this name. This suspicion is emphasized by the appearance of six fall birds from Nampa, Idaho, which are of an extreme grayness of coloration not to be matched by any winter birds from California. The status of these several series, however, is a problem to be solved by some future worker with an abundance of breeding birds from appropriate localities. In series of winter specimens of this or comparable species there are sure to be many intermediates, sometimes extremely difficult to recognize as such, and always hard to adjudge as to their real significance. So it must suffice to say here that, compared with the Idaho specimens (which may be presumed to be fairly typical of *plesius*), winter birds from California are, with hardly an exception, more richly colored, less grayish, and with appreciably darker flanks. This generally darker coloration is by no means correlated with small

size, so is not to be looked upon as indicative of mere intergradation with the smaller and darker race *paludicola*. There are, however, a number of small sized individuals in the series, which, despite this character, are readily distinguishable from the latter race. These are nearly all from the Colorado and Mohave deserts.

In Oberholser's description (Auk, Vol. 14, 1897, pp. 186–196) of *Cistothorus palustris plesius* mention is made (p. 192) of an August specimen from Fort Klamath, Oregon, which though referred to *plesius*, is regarded as intermediate between that race and *paludicola*. This skin is before me, and the characteristics mentioned are readily appreciable. There is another specimen at hand, a January bird, from Camp Harney, in the same general region, which is even darker in appearance, though again apparently referable to *plesius*. The Fort Klamath bird can be closely matched as to color by others from southern California, which I also regard as non-typical examples of *plesius*.

The question arises as to the relationships of the breeding bird of south-central Oregon to *æstuarinus* of the Suisun region, a question that cannot be settled without material from the Sacramento Valley. This region is not represented by a single specimen in the series under consideration. It is at any rate a possibility that *æstuarinus* extends north through the Sacramento Valley to southern Oregon, its range interposed between those of *plesius* and *paludicola*, and that at the north mergence of characters occurs with either one or both of the latter races. The few birds at hand from southern Oregon, and from certain other points (as noted under *æstuarinus*) are certainly suggestive of such a possibility.

MEASUREMENTS IN MILLIMETERS (AVERAGE, MINIMUM AND MAXIMUM) OF PACIFIC COAST RACES OF *Telmatodytes palustris*.

	Wing	Tail	Culmen	Tarsus	Middle Toe without Claw
Telmatodytes p. paludicola					
8 males, San Diegan district, Calif.	48.2 (44.0–49.5)	43.2 (41.0–44.5)	12.5 (11.5–13.0)	18.7 (17.0–19.0)	12.2 (11.0–13.0)
8 females, San Diegan district, Calif.	47.1 (45.0–49.5)	41.0 (39.5–43.0)	11.9 (11.5–12.5)	17.7 (17.0–18.0)	11.8 (11.5–12.0)
3 males, Santa Clara and Marin counties, Calif.	47.5 (47.2–48.0)	43.5 (41.0–45.5)	12.1 (11.5–12.8)	17.4 (17.0–18.0)	12.7 (12.2–13.0)
10 females, Santa Clara and Marin counties, Calif.	47.3 (45.5–48.0)	42.4 (41.0–44.0)	11.8 (11.0–12.5)	18.0 (17.5–19.0)	12.1 (12.0–12.5)
6 (4 males, 2 sex undetermined), Marin County, Humboldt Bay and Crescent City, Calif.; Shoalwater Bay and Tacoma, Washington.	48.1 (46.0–49.5*)	43.1 (40.0–45.0*)	11.9 (11.5–12.8)	18.0 (17.0–19.2*)	12.4 (11.0–13.0*)
Telmatodytes p. æstuarinus					
10 males, Solano and Sonoma counties, Calif.	51.6 (50.5–53.0)	46.8 (45.5–49.0)	13.0 (12.2–13.5)	17.8 (17.0–20.0)	13.04(12.0–13.5)
2 females, Solano and Sonoma counties, Calif.	52.0 (51.0–53.0)	48.5 (48.0–49.0)	12.7 (12.5–13.0)	19.0	12.7 (12.5–13.0)
Telmatodytes p. plesius	53.6 (52.0–55.5)				
10 males, Colorado and Mohave deserts, Calif.		47.2 (45.0–49.0)	13.4 (13.0–14.5)	19.7 (19.0–20.5)	12.9 (12.0–13.5)
8 females, Colorado Desert and San Diegan district, Calif.	51.5 (49.0–55.5)	45.5 (41.5–50.0)	12.9 (12.5–13.5)	18.9 (17.2–20.5)	11.9 (11.0–13.0)

* Measurements of type specimen of *Cistothorus palustris paludicola* Baird.

* Measurements of type specimen of *Cistothorus palustris paludicola* Baird.

FLORIDA GALLINULE.

1. SETTLING ON NEST. 2. ARRANGING NEST.

NESTING OF THE FLORIDA GALLINULE.

BY VERDI BURTCH.

Plates XI–XII.

IN the spring of 1916 the water was very high in the marsh at Branchport, N. Y., and nearly all of the early nests of Red-winged Blackbirds and Florida Gallinules were submerged and destroyed. One pair of Gallinules had completed their nest near the margin of the marsh and only a short distance from my house. Six eggs had been layed when a rise of the water covered the nest causing it to disintegrate, letting the eggs through the bottom of it where I found them resting on the mud below.

Soon after this, June 11, and a beautiful moonlight night, I was pushing my boat through the flags when I found a Gallinule's nest containing one egg. It was in the same locality as the first mentioned nest and I have no doubt that it was constructed by the same birds. On the 16th, it rained very hard all day and all night and when I visited the nest next day I found it under water. The five eggs which it now contained were nearly under water and the female Gallinule was swimming around close to the nest. Thinking that she might desert the nest if I disturbed her I passed quickly on. The next day there were six eggs in the nest and I was surprised to find that the Gallinules had added new green flags to the nest raising it, *eggs and all* at least ten inches higher. The eggs were now about ten inches above the water and no more eggs were laid but the nest was made more compact and substantial.

July 1, I erected a blind about ten feet from the nest and at 8.50 A. M. next day I concealed myself therein. Both Gallinules were heard when I first arrived then were still until 9.15 when there was a splash in the water near by and the female appeared for a moment then went away again. At 9.30 she cackled *cut, cut, cut-cut-cut-cut-cut* and at 9.40 she came to within ten feet of the nest, sounded alarm note then made a complete circle around the blind and went on the nest at 9.50 unobserved by me. There she sat pulling the growing flags to and around her and at 10.15

the male called *kr-r-r-r-k*, *kr-r-r-r-k*, and she answered, *krup'*. The nest was exposed to the hot sun, as I had cut some of the flags away, and she stood in the nest with her feathers ruffled, panting and trying to pull the flags around her, and frequently uttered a low *ku ku ku*.

At 10.50 she went to the edge of the nest and drank some water, arranged her feathers a few minutes then slid into the water and swimming rapidly away met and passed the male as he came swimming towards the nest. He did not go on the nest at once but maneuvered around until 11 o'clock, then as he was going on I released the shutter of my camera and he jumped back and scolded. Again he cautiously approached and then retired again. Once again he came and was all settled on the nest at 11.10. However he appeared rather suspicious, stretching out his neck and swaying his head from side to side, his dark red eyes shining and his tail flipping as he scrutinized the blind.

At 11.30 the female called *kr-r-r-r-k* from way out in front and was answered from the nest by the male. At 11.40 she uttered conversational notes then the creak and was answered by the male with explosive base notes in a low tone. She kept up the conversational notes until the male called rather impatiently. Then she appeared at 11.45 and they changed places, she going on to the nest immediately after he had left it. I remained in the blind until 12.15 when my movements alarmed her and she left the nest.

July 3, we had another hard rain and when I visited the blind the afternoon of the 4th, more green flags had been added to the nest raising it several inches higher.

July 5, I arrived at the blind at 1.30 P. M. The female Gallinule was seen back of the nest at 1.40. The wind was blowing hard flapping the cover of the blind, which seemed to bother her and she came on cautiously, advancing and retiring again several times, then she gave a sharp cak' and swam rapidly to the nest. Behind her came the male following her up close to the nest when she went on and settled down, then he retired. She spent much of the time while she was on the nest in arranging the nest materials and trying to pull the growing flags around her.

At 2.40 she was peering ahead into the water, the nest began to move and a turtle appeared close beside the nest. She stood up

FLORIDA GALLINULE.

1. DISTURBED BY A TURTLE.

2. RESUMING POSITION AGAIN.

backing to the edge of the nest where she raised her wings threateningly and uttered the creaking note in a frightened tone. The turtle soon disappeared but she remained at the side of the nest creaking softly for several minutes, then peering ahead she cautiously settled down to brood.

Next day I found the nest all mussed up with three of the eggs remaining in it and two more in the water on one side. I was in the blind nearly an hour and although I heard Gallinules near several times none came to the nest.

On examination the nest appeared to have become water soaked one side disintegrating so that the weight of the Gallinule had caused it to sink and spill the eggs. Or perhaps a turtle had tried to climb upon the nest. However this does not seem probable as the eggs had not been destroyed.

Incubation was almost complete in some of the eggs and there would have been young in the nest inside of two days and I had hoped to be in the blind at this interesting time.

NOTES ON NORTH AMERICAN BIRDS.

II.

BY HARRY C. OBERHOLSER.

LIKE the first installment[1] the present paper is made up of various notes on North American birds. A few of the birds treated below belong to species or genera which are much in need of revision, and the notes on such have been withheld for years in the expectation that time and opportunity would avail for thorough study of these groups. But since this does not appear possible in the near future, these comments are now presented in this form in the hope that they may be of at least some assistance to ornithologists.

[1] For the first paper of this series see 'The Auk,' XXXIV, April, 1917, pp. 191–196.

Vireo bellii arizonæ Ridgway.

The Arizona form of *Vireo bellii* was originally characterized by Mr. Ridgway in 1903[1] from a type collected at Tucson, Arizona. It has commonly been considered as inseparable from *Vireo bellii pusillus* Coues, but by a study of our Texas and other material, some of this additional to that available to Mr. Ridgway, the race is shown to be readily distinguishable from both *Vireo bellii pusillus* of California as well as from *Vireo bellii medius* of central western Texas. It differs from the former in having the upper parts decidedly more greenish (less grayish), and the lower parts less whitish, the sides and flanks much more strongly tinged with olive grayish and more washed with yellowish. The wing and tail average somewhat shorter, but these differences are not of much value in identifying specimens. From *Vireo bellii medius* Oberholser it may readily be distinguished by its decidedly longer tail and much paler and more grayish coloration, both above and below.

The geographic distribution of *Vireo bellii arizonæ* extends from the extreme western portion of central western Texas west to southern Arizona, and south to the Mexican states of Sonora, Sinaloa, and Chihuahua.

Bæolophus inornatus murinus Ridgway.

This race of *Bæolophus inornatus* was first made known by Mr. Ridgway in the Proceedings of the Biological Society of Washington, Volume XVI, June 25, 1903, page 109, as *Bæolophus inornatus murinus*, from a specimen taken in the Nachoguero Valley, northern Lower California. It was later more fully described by him[2]; it was also recognized some years later by Dr. Joseph Grinnell and Mr. H. S. Swarth;[3] and subsequently, though without comment, by Doctor Grinnell in Pacific Coast Avifauna No. 11, 1915, p. 163; but it seems to have been otherwise generally ignored by ornitho-

[1] *Vireo bellii arizonæ* Ridgway, Proc. Biol. Soc. Washington, XVI, September 30, 1903, p. 108.

[2] Bull. U. S. Nat. Mus., No. 50, part III, 1904, pp. 389–390.

[3] Univ. Calif. Publ. Zool., X, No. 10, October 13, 1913, p. 310.

logical writers. Examination of the material available shows that it is, however, a recognizable subspecies, differing from *Bæolophus inornatus inornatus* in its more grayish coloration and additionally in its darker under parts; and from *Bæolophus inornatus griseus* in its decidedly darker color. It ranges in the Pacific coast region from northern Lower California north through southern California to Santa Barbara County.

Bæolophus wollweberi annexus (Cassin).

The existence of two forms of *Bæolophus wollweberi* (Bonaparte) was first noticed by Mr. Ridgway.[1] His distinction has subsequently been ignored and the entire species included under one form. That there are, however, two readily distinguishable races is evident on comparison of specimens from Arizona with those from central and southern Mexico. The northern race differs from the southern in its decidedly paler coloration both above and below.

This species was originally described as *Lophophanes wollweberi* from Zacatecas, Mexico, by Bonaparte.[2] Birds examined from Huasamota, Durango, which is considerably north of Zacatecas, prove to be almost identical with those from southern Mexico, though verging slightly toward the northern race; consequently the specific name *wollweberi* must apply to the southern bird, which, therefore, becomes the typical race. A name for the northern bird is, as already shown by Mr. Ridgway, found in *Parus annexus* Cassin,[3] described from a specimen purporting to be from the Rio Grande in Texas. As, however, the species is not known to occur in Texas, this locality is probably erroneous; but the applicability of the name is undoubted, since the type, which has been examined, proves to be identical with birds from Arizona. The northern race of the species must, therefore, stand as *Bæolophus wollweberi annexus* (Cassin). Its geographic distribution is as follows:

[1] Bull. U. S. Nat. Mus., No. 50, part III, 1904, p. 393.
[2] Comptes Rendus Acad. Sci., XXXI, October, 1850, p. 478.
[3] Proc. Acad. Nat. Sci. Phila., V, October, 1850, p. 103, pl. I.

Mountains of northwestern Mexico and contiguous portion of the southwestern United States; north to southwestern New Mexico and southern Arizona; west to Sonora; south to Sonora and Chihuahua; and east to Chihuahua and southwestern New Mexico.

The range of *Bæolophus wollweberi wollweberi* is consequently restricted to the mountains of central and southern Mexico, north to Zacatecas and Durango, and south to Vera Cruz, Puebla, and Oaxaca.

Geothlypis trichas brachidactyla (Swainson).

This race of *Geothlypis trichas* was first properly distinguished by Mr. William Palmer,[1] although the *Trichas brachidactylus* of Swainson,[2] based on birds from the northern provinces of the United States, is its earliest name. It has in recent years been generally discredited, possibly on account of the difficulty in distinguishing worn specimens; but with the proper material from typical sources, it may be easily recognized. It differs from *Geothlypis trichas trichas* in its larger size, and, in the male, by reason of its more greenish upper surface, more whitish frontal band of gray, more extensively yellow posterior lower parts, and its usually more brownish flanks. The female is similar to that of *Geothlypis trichas trichas* but is larger, more greenish above, and slightly paler.

The geographic range of *Geothlypis trichas brachidactyla* includes the northeastern United States and southeastern Canada; the bird breeding north to Newfoundland, central Quebec, northern Ontario, northern Minnesota, and northeastern North Dakota; west to central North Dakota and central Nebraska; south to northeastern Kansas, southern Illinois, southern Indiana, Ohio, northern Pennsylvania, and northern New Jersey; and east to the Atlantic coast from northern New Jersey to Nova Scotia and Newfoundland. It winters south to the Bahama Islands, Cuba, Jamaica, Swan Island in the Caribbean Sea, Costa Rica, Nicaragua, Guatemala, southern and eastern Mexico.

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[1] Auk, XVII, July, 1900, pp. 221, 226–228.
[2] Anim. in Menag., 1838, p. 295.

Dendroica cærulescens cairnsi Coues.

The status of this race has recently been questioned by Mr. C. W. G. Eifrig[1] on account of two intermediate male specimens collected in the Allegheny Mountains of western Maryland; and on this basis it is proposed to eliminate the form from the North American list.[2]

Examination, however, of a large series of birds of this species representing both *Dendroica cærulescens cærulescens* and *Dendroica cærulescens cairnsi* indicate that the two current races are clearly recognizable. While it is true that the amount of black on the back of the male varies considerably in both forms and that males from New York and New England occasionally have much black on the interscapulum, it is also true that the southern birds have on the average a much greater amount of black and are almost never entirely without these black markings. There are, however, other characters in the male which serve to separate *Dendroica cærulescens cairnsi* from *Dendroica cærulescens cærulescens*, such as the darker shade of the bluish ground color of the upper parts, especially the pileum, which also is sometimes streaked with black. The female of *Dendroica cærulescens cairnsi* is even more easily distinguished than is the male, for it is darker and duller above as well as less yellowish on the lower parts, and has the olivaceous color of the flanks darker and more strongly contrasted with the pale dull yellowish of the middle of the abdomen. In characterizing this southern race of the Black-throated Blue Warbler altogether too much emphasis has heretofore been placed on the amount of black on the back of the male, for the subspecies, as above indicated, would not fall with this character alone, since the coloration of females is undoubtedly the best diagnostic character. In fact, *Dendroica cærulescens cairnsi* is a perfectly recognizable race and deserves retention in our list.

Mr. Eifrig, in the communication above mentioned, has intimated that the breeding form of this species in the mountains of western Maryland is the northern race, *Dendroica cærulescens*

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[1] Auk, XXXII, January, 1915, p. 110.

[2] *Cf.* Stone, Auk, XXXIII, October, 1916, p. 431.

cærulescens, basing this statement on two adult males which seem to be nearer that form. In this region, which is the transition ground between many northern and southern races, particularly those of the Allegheny Mountains, we should expect to find specimens that would give more or less trouble in their identification, and this is true not only in the particular species under consideration but in several others. There are in the Biological Survey collection 9 adult specimens of the Black-throated Blue Warbler from the mountains of western Maryland, taken at Finzel, Bittinger, and Kearney. This series includes both males and females, and while some of the specimens incline strongly toward *Dendroica cærulescens cærulescens*, and all of them are more or less intermediate, the series as a whole shows that the breeding form of this region is *Dendroica cærulescens cairnsi*.

Vermivora celata orestera Oberholser.

The Rocky Mountain form of *Vermivora celata* was originally described [1] from Willis in northern New Mexico. Most subsequent authors, doubtless from lack of sufficient material, have failed to recognize its distinctness. Additional material from various parts of its range, examined since the original description was published, fully substantiates the characters of the race as they were given. It is readily distinguishable from *Vermivora celata celata* by its larger size and much more yellowish coloration both above and below; and from *Vermivora celata lutescens* by its much greater dimensions and by the duller, less yellowish color of both upper and lower parts. Thus, while *Vermivora celata orestera* is intermediate in the character of its coloration between *Vermivora celata celata* and *Vermivora celata lutescens*, it is not so in size, for it is larger than either. It occupies much the same relation to the eastern and western races of its species as does *Wilsonia pusilla pileolata* to *Wilsonia pusilla pusilla* and *Wilsonia pusilla chryseola*. Detailed measurements of this and the other forms of *Vermivora celata* may be found in the present writer's previous paper on the subject.[2]

[1] *Vermivora celata orestera* Oberholser, Auk, XXII, July, 1905, p. 243.
[2] Auk, XXII, April, 1905, pp. 246–247.

The geographic distribution of *Vermivora celata orestera* is as follows:

Western United States, southwestern Canada, central and northern Mexico. Breeds north to southern Alberta and southern British Columbia; west to eastern Washington, eastern Oregon, and eastern California; south to southeastern California, southern Arizona, and central New Mexico; east to New Mexico, Colorado, Wyoming, and Montana. Winters south to the Mexican states of Tamaulipas, Puebla, Morelos, Guerrero, Michoacan, Jalisco, and southern Lower California. Migrates east to Minnesota and casually to Pennsylvania.

Molothrus ater artemisiæ Grinnell.

The northwestern form of *Molothrus ater* was described by Dr. Joseph Grinnell as *Molothrus ater artemisiæ*[1] from the Quinn River Crossing in Humboldt County, Nevada. Five days later appeared the description of *Molothrus ater dwighti* by Dr. Louis B. Bishop,[2] based on specimens from Crane Lake, Saskatchewan, Canada. These two birds are undoubtedly the same, and of course the former name has priority. This race has since been generally ignored, but examination of a large amount of material shows that it is nearly as well characterized as *Molothrus ater obscurus*. It is even larger than *Molothrus ater ater*, as may be seen by consulting the detailed measurements given by Dr. Bishop,[3] and has a longer and relatively slenderer bill, the outline of the culmen being not so convex. The female is similar to the same sex of *Molothrus ater obscurus*, but is paler, more brownish, with a usually more whitish throat. With *Molothrus ater obscurus* it scarcely needs comparison, as it is in every respect so much larger.

The geographic ranges of the three forms of *Molothrus ater*, after the revision now necessary by the recognition of an additional subspecies, are as follows:

Molothrus ater ater.— Eastern North America: breeds north to New Brunswick, Quebec, and Ontario; west to Minnesota, Iowa,

[1] Univ. Calif. Publ. Zool., V, No. 5, December 31, 1909, p. 276.
[2] Auk, XXVII, No. 1, January 4, 1910, p. 61.
[3] Auk, XXVII, No. 1, January 4, 1910, pp. 61–62.

southeastern Montana, eastern Wyoming, Colorado, and New Mexico; south to southern New Mexico, central western and central Texas, Louisiana, and North Carolina; east to the Atlantic coast from North Carolina to New Brunswick; and winters south to the Gulf coast of the United States and the Mexican states of Tamaulipas, Yucatan, Zacatecas, Michoacan, and Sinaloa.

Molothrus ater artemisiæ.— Western United States and western Canada: breeds north to southern Keewatin and southern Mackenzie; west to Alberta, Oregon, and California; south to south central California, Nevada, central Utah, southwestern Wyoming, southwestern Montana, and central Montana; east to eastern North Dakota and Manitoba; and winters south to southern Texas and the Mexican states of Vera Cruz, Michoacan, Tepic, and southern Lower California. Casual east to Fort Snelling, Minnesota.

Molothrus ater obscurus.— Mexico and the southwestern border of the United States: breeds north to southern Louisiana, southern Texas, central Arizona, and southern California, south to Tamaulipas, Oaxaca, Colima, Sinaloa, and southern Lower California.

Loxia curvirostra bendirei Ridgway.

This crossbill was first described by Mr. Ridgway from Fort Klamath, Oregon.[1] Although Mr. Ridgway has since consistently recognized it, and in his "Birds of North and Middle America" has set forth its characters in detail with tables of measurements,[2] it has been generally discredited. A recent careful examination of all material available shows, however, that this race is well deserving of recognition, although, as often happens in closely allied subspecies, the characters are largely average distinctions. It differs from *Loxia curvirostra minor* in decidedly larger size and rather paler colors; and occupies, moreover, a definite and very extensive range in the western United States. From *Loxia curvirostra stricklandi* it differs in being decidedly smaller. While it thus is intermediate between *Loxia curvirostra minor* and *Loxia*

[1] *Loxia curvirostra bendirei* Ridgway, Proc. Biol. Soc. Wash., II, April 28, 1884, p. 101.
[2] Bull. U. S. Nat. Mus., No. 50, part I, 1901, p. 50.

curvirostra stricklandi, and some of its specimens are troublesome to distinguish with certainty, most individuals are without difficulty determinable. In view of these facts it seems desirable to recognize *Loxia curvirostra bendirei* as an additional race. Detailed measurements of all three American forms of this species can be found in Mr. Ridgway's "Birds of North and Middle America."[1] The geographic distribution of *Loxia curvirostra bendirei* as now made out is as follows:

Breeds in the mountains of the western United States, north to Wyoming and Montana; west to Oregon and California; south to southern California and northern New Mexico; and east to Colorado. Migrates east to eastern Nebraska, Kansas, and central Texas; west to the coast of southern California; and casually to Guadalupe Island, Lower California.

Passer hostilis Kleinschmidt.

The British form of *Passer domesticus*, with which the birds from the United States are identical, was recently described by Kleinschmidt as *Passer hostilis*.[2] Notwithstanding the fact that Kleinschmidt used a binomial designation he really intended to describe the British bird as a subspecies of the typical continental form, as may readily be seen by consulting his remarks. Furthermore, the difference between the two forms is not a constant one, being merely a matter of the average smaller size of the British bird. The proper designation of the British and consequently the North American bird is, therefore, *Passer domesticus hostilis*. In view of this recent development, the name "English" Sparrow, by which this bird is commonly known in the United States, is not such a misnomer after all.

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[1] Bull. U. S. Nat. Mus., No. 50, part I, 1901, pp. 47–52.

[2] Falco, XI, No. 2, December, 1915, p. 19 (type locality, Tring, England).

A SYNOPSIS OF THE RACES OF *BOMBYCILLA GARRULA* (LINNÆUS).

BY HARRY C. OBERHOLSER.

WHEN Mr. Ridgway last treated the Bohemian Waxwing he found no subspecific differences in any part of its range.[1] A recent examination and comparison of specimens of this species from Europe, Asia, and North America, including much material additional to that examined by Mr. Ridgway shows that the North American bird is decidedly different in coloration from that of Europe. The bird from Asia, though to a certain extent intermediate, is yet racially distinguishable from those of both Europe and North America. Three subspecies are thus recognizable, as set forth below.

The generic name *Bombycilla* Vieillot,[2] which has currently been used for this group, has been rejected [3] in favor of *Ampelis* Linnæus, on the ground that the type of *Ampelis* Linnæus is by tautonomy *Lanius garrulus* Linnæus. A recent examination of the original description of *Ampelis* Linnæus [4] shows, however, that while the word *Ampelis* was used in the synonymy, it was not in the sense of *the* Ampelis, but merely as part of a descriptive polynomial. Thus, according to the ruling of the International Commission on Nomenclature, this can not be construed as constituting tautonomy in a pre-Linnean publication such as Linnæus' Fauna Suecica. Consequently the type of *Ampelis* must be subject to subsequent designation, which apparently was first made by Gray in 1840, by whom *Ampelis cotinga* Linnæus was selected.[5] The generic name for the waxwings, therefore, must revert to *Bombycilla* Vieillot.

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[1] Bull. U. S. Nat. Mus., No. 50, part 3, 1904, pp. 105–109.

[2] Ois. Amér. Sept., I, 1807 (1808), p. 88, pl. 57 (type, by monotypy, *Bombycilla cedrorum* Vieillot).

[3] Committee Brit. Ornithologists' Union, List Brit. Birds, 1915, p. 362.

[4] Syst. Nat., ed. 12, I, 1766, p. 297.

[5] List Genera Birds, 1840, p. 34.

Bombycilla garrula garrula (Linnæus).

[*Lanius*] *garrulus* LINNÆUS, Syst. Nat., ed. 10, I, 1758, p. 95 (Europe and North America).

Corvus lientericus TEMMINCK, Cat. Systématique Cabinet d'Ornith., 1807, p. 43 (nom. nov. pro *Ampelis garrulus* Gmelin).

Bombyciphora poliocælia MEYER, Vögel Liv.- u. Esthlands, 1815, p. 104 (nom. nov. pro *Lanius garrulus* Linnæus).

Bombycilla Bohemica LEACH, Synopt. Cat. Brit. Birds, 1817, p. 6 (nom. nov. pro *Lanius garrulus* Linnæus).

Garrulus europæus DUMONT, Dict. Sciences Nat., XXIV, 1822, pp. 184, 185 (nom. nov. pro *Ampelis garrulus* Linnæus).

Garrulus major DUMONT, Dict. Sciences Nat., XXIV, 1822, pp. 184, 185 (nom. nov. pro *Ampelis garrulus* Linnæus).

Parus Bombycilla PALLAS, Zoogr. Rosso-Asiat., I, 1826, p. 548 (nom. nov. pro *Lanius garrulus* Linnæus).

Bomb[*ycilla*]. *brachyrhynchos* BREHM, Vogelfang, 1855, p. 79 (middle Europe).

Bombycilla cærulea DUBOIS, Rev. et Mag. de Zool., XII, 1860, p. 2 (lapsus calami pro *Bombycilla garrula*).

Bombycilla garrula vulgaris HARTERT, Vögel paläarkt. Fauna, I, Heft IV, March, 1907, p. 456 (A. E. Brehm MS.) (nom. nov. pro *Lanius garrulus* Linnæus) (in synonymy).

Chars. subsp.— Colors darkest and most vinaceous.

Measurements.— Male:[1] Wing, 114 mm.; tail, 62; exposed culmen, 10.5; tarsus, 20; middle toe without claw, 16.

Both sexes:[2] Wing, 110–120; tail, 62–70; exposed culmen, 11–12; tarsus, 20–21.5.

Type locality.— Sweden (designated by Hartert).[3]

Geographic distribution.— Europe: Breeds north to northern Russia and northern Norway, and south to about 65° north latitude; winters north to southern Norway; west to Ireland; and south to England, southern France, northern Italy, and Turkey.

Remarks.— This is the darkest form of the species, and in coloration is decidedly vinaceous above. So far as we are able to determine, it is confined to Europe. In the present connection specimens have been examined from Russia, Norway, Prussia, and Denmark.

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[1] One male from Norway. Most of the European birds examined in the present connection are without indication of sex, and therefore have not been used in the above-given measurements.

[2] From Hartert.

[3] Vögel paläarkt. Fauna, I, Heft IV, March, 1907, p. 456.

Bombycilla garrula centralasiæ Poljakov.

Bombycilla garrulus centralasiæ POLJAKOV, Messager Ornith., VI, April, 1915, p. 137 (Zaissan district, southwestern slope of Altai Mountains, Turkestan, central Asia).

Chars. subsp.— Similar to *Bombycilla garrula garrula*, but paler and somewhat less vinaceous (more cinnamomeus) above, particularly on back and cervix; also averaging less vinaceous below (more grayish).

Measurements.— Male:[1] Wing, 111–119 (average, 114.4) mm.; tail, 59–63 (61); exposed culmen, 10.5–11.8 (11.3); tarsus, 20–20.5 (20.1); middle toe without claw, 16–17 (16.7).

Type locality.— Zaissan district, southwestern slope of Altai Mountains, Turkestan, central Asia.

Geographic distribution.— Asia: Breeds in northern Siberia south at least to Vladivostok; winters south to Turkestan and central eastern China.

Remarks.— Birds of this species from northeastern Asia differ from *Bombycilla garrula garrula* of Europe as mentioned by Poljakov in his original description of *Bombycilla garrula centralasiæ*, and undoubtedly belong to the same form. This race, though to some extent intermediate between *Bombycilla garrula garrula* and the North American bird hereinafter separated as *Bombycilla garrula pallidiceps*, is nevertheless worthy of recognition. The limits of the breeding range are at present unknown, but it is without much doubt the breeding bird of northern Siberia. We have examined a summer specimen from Vladivostok. The area of its intergradation with *Bombycilla garrula garrula* is probably somewhere in western Siberia, but this remains yet definitely to be determined. A specimen from Hsing-lung-shan, 65 miles northeast of Peking, China, taken February 12, 1915, is paler and much more grayish both above and below than other specimens of *Bombycilla garrula centralasiæ*, and may possibly be a wanderer from North America, but for the present it is referred to *Bombycilla garrula centralasiæ*. Specimens of this subspecies have been examined from also Tokio, Iwaki, and Hakodate, Japan; Shanghai and Peking, China; and Bering Island in the Commander Islands.

[1] Average of 6 specimens from Japan, Siberia, and China.

Bombycilla garrula pallidiceps Reichenow.

Bombycilla garrula pallidiceps REICHENOW, Ornith. Monatsber., XVI, No. 12, December, 1908, p. 191 (Shesly River, northern British Columbia).

Chars. subsp.— Similar to *Bombycilla garrula centralasiæ*, but decidedly more grayish (less cinnamomeus) both above and below.

Measurements.— Male:[1] Wing, 111–117 (average, 114.5) mm.; tail, 63–70 (65.5); exposed culmen, 11.5–12.2 (11.9); tarsus, 20–21.5 (20.8); middle toe without claw, 16–19 (17.2).

Type locality.— Shesly River, northern British Columbia, Canada.

Geographic distribution.— Northern and central North America: Breeds north to northern Mackenzie and northern Alaska; west to western Alaska and western British Columbia; south to southern British Columbia and southern Alberta; and east to northeastern Manitoba. Winters east to Nova Scotia; and south, though irregularly, to Connecticut, Pennsylvania, Ohio, Indiana, southern Illinois, Kansas, Colorado, and southern California. Casual in Arizona.

Remarks.— The North American representatives of this species constitute a well-marked and readily recognizable subspecies which differs from *Bombycilla garrula garrula* in its paler, very much more grayish (less vinaceous or cinnamomeus), coloration both above and below, and from *Bombycilla garrula centralasiæ* as above indicated. There is considerable individual variation in the color of the upper surface, and some specimens in this respect overlap the characters of *Bombycilla garrula centralasiæ;* but as a whole the large series which we have examined shows a good average difference. So far as we have been able to determine, there is no geographical variation among the birds from North America, since those from the easternmost part of the range of the species appear to be just the same as those from far western localities. This to a certain extent might be expected, since this waxwing, so far as we know, does not breed east of Hudson Bay. No comparison, however, has been made of breeding birds from southern Alberta and southern British Columbia with those from more northern localities.

[1] Average of ten specimens from Oregon, Washington, and Montana.

GENERAL NOTES.

An Early Colorado Record of the White-tailed Ptarmigan.— There is an exceedingly interesting, but almost unknown book, dealing in part with pioneer times in Colorado entitled Thirty Years of Army Life on the Border. It was written by Capt. R. B. Marcy, who later rose to the rank of General in the U. S. Army; his daughter married General Geo. B. McClellan, and his grandson was sometime mayor of New York.

Capt. Marcy had in him the making of a splendid naturalist, but duties and training turned his activities into other channels. This particular book of his, contains many references to birds, and should be read by every one interested in western bird life. During the course of his military duties, Capt. Marcy made a trip from Fort Bridger, Utah, to Fort Montgomery, New Mexico, crossing the Continental Divide over Cochetopa Pass, doing so in the dead of winter (January, 1858); he and his men suffered almost unbelievable hardships from the arctic cold, and from hunger, yet they succeeded in reaching their goal. On page 234 of the above cited book, Capt. Marcy says, "One day we were .... near the summit of the mountains .... my guide pointing to a snow bank, said there were some birds he had never but once before seen .... we .... killed two of them. They were white as the snow itself .... two specimens which were sent to Professor Baird of the Smithsonian Institute showed them to be *Sagopus leucurus* [spelling as in original], or white-tail ptarmigan. This beautiful bird was before supposed to be confined to that part of the Rocky Mountain Chain north of latitude 54° north. The specimens sent to Professor Baird are said by him to be the first indication of their occurrence within the limits of our possessions, and it extends the supposed range about a thousand miles to the south."— W. H. Bergtold, *Denver, Colo.*

Wild Geese at Moose Factory.— In connection with his work with the wild geese at Kingsville, Ontario, Mr. Jack T. Miner has put tags on a number of Canada Geese, some of which have been returned to him, mainly from the north country, and he has had some interesting letters from Hudson Bay men, from one of which, from Mr. Owen Griffith, Moose Factory, the following quotation is taken.

"I am now stationed here at Moose for the winter and shall be going to Albany in the spring. This is a post on the opposite side of James Bay to Fort George, but a very good place for game, especially those birds we call "Wavies"; it is a strange thing that on the West Coast of James Bay, we get almost nothing but "White Wavies" with an occasional blue one in the flock, while on the East Coast it is just the opposite with almost nothing but Blue (grey) with a few white ones in the flock. While a short distance farther north (on the East Coast) at Whale River the

White reappear again in large numbers, so that they evidently cross the Bay on their annual migrations.

"There are lots of geese both on the East and West sides of the Bay, but I believe that more pass on the East (Fort George side) than the other as the Coast is rocky with lots of islands where they can breed. We have some Islands out in the Bay called the "Tioms" which are great breeding places and every summer the Indians make quite a haul of young and moulting geese there.

"The Indians who killed those tagged geese said that they seemed to be tamer than the others and came out of large flocks and down to the decoys when the rest of the band would not turn.

"About three miles north of Fort George Post there is a big Bay (salt water) with lots of mud and grass at low tide and in the spring almost every flock of wavies and some geese feed in this Bay on their way North; the Indians never hunt them on their arrival in this Bay but gather on a long hill on the other side and then shoot at the birds as they are going off; they generally get up in small flocks and as they have to rise considerably to clear the hill, they can be seen getting up sometime before they get to the hill, and then everyone runs along a path and tries to get right under where the flock is going to pass; of course if three or four flocks get up at the same time, there is shooting on different parts of the hill and the hunters are apt to spoil one another. The Indians say that once these birds leave this Bay that they do not feed again till they get far North (Hudson Straits or Baffin Land) in fact a Wavies' nest is a great rarity. Strange to say they do not feed in this Bay in the fall.

"We have no wild rice in the Bay and the birds seem to feed mostly on grass in the salt water and in the fall they go out to the Islands to feed on berries; they fly out to the Islands in the mornings and back into the small Bays for the nights." — W. E. Saunders, *London, Ont.*

Wood Duck Removing Young from the Nest.— How does the old Wood Duck get her little ones into the water from the nest in a hollow tree or stub, forty or fifty feet from the ground and which is, may be, two or three hundred feet from the water? Mr. Burroughs says, "That the feat of getting down from the tree top cradle had been safely affected probably by the young clambering up on the inside walls of the cavity and tumbling out into the air and then coming down gently like huge snowflakes. The notion that the mother duck takes the young one by one in her beak and carries them to the creek is doubtless erroneous. But this is precisely how she gets them into the water.

Early in July, 1898, while tented on the bank of the Michigamme River, Township 43 — North Range 32 west section one, Iron County, Mich., I had the good fortune to see it done. The nest was in a hollow pine that stood directly back of the tent and about two hundred feet from the water, and the hole where the old duck went in, was fifty or sixty feet from the ground. After seeing the old duck fly by the tent, to and from her feeding

grounds up the river many times during the time of incubation, one morning before sunrise she flew by, from the tree to the river, with a little duck in her beak which she left in an eddy a short distance up stream. She then made ten or twelve trips to the nest and each time took a little duck in her beak by the neck to the water, where they all huddled in a little bunch. It was all done in a few minutes and she evidently took them to the water very soon after they were hatched, as they were only little balls of down. In going to and from work, we passed the little bunch many times. On our approach the old duck would fly away and leave the little ones huddled in a bunch near the shore where the water was quiet.

John Muir in his 'Boyhood and Youth, a Thousand Mile Walk to the Gulf' tells of a friend of his who was a keen observer who had seen the mother wood duck perform this same feat.— E. G. KINGSFORD, *Iron Mountain, Mich.*

Northern Phalarope in Michigan.— I am glad to be able to record two specimens of this rare bird taken within our limits. In November last, we received from Mr. Albert Hirzel of Forestville, Sanilac County, Michigan, a mounted specimen of a female Northern Phalarope (*Lobipes lobatus*) taken on October 4, 1911, while swimming in Lake Huron near Forestville. At the same time Mr. Hirzel sent us a male bird of the same species taken on October 28, 1911, while running along the beach at the same place. This species was given a place in my 'Michigan Bird Life' on the strength of several more or less definite Michigan records, no one of which, however, was supported by an actual specimen which could be located, in addition to several unquestioned records from adjoining states.

The above specimens seem to establish the bird properly in the Michigan list and they are numbered 9687 (female) and 9688 (male) in the museum catalog of the Michigan Agricultural College, East Lansing.— WALTER B. BARROWS, *Lansing, Mich.*

The Western Goshawk (*Astur atricapillus striatulus* **Ridg.**), **in Iowa.**— So far as the writer is aware the Western Goshawk has not been reported hitherto from Iowa. Two Goshawks of this subspecies have come to hand during the past season. The first was secured by Mr. Wesley F. Kubichek of Iowa City, having been shot in Johnson County, Iowa, during the last week in October, 1916. The sex of this specimen was not determined. The second specimen, a female, was shot by Mr. Joseph Shellhorn on his farm near Cedar Rapids, Linn County, Iowa, November 16, 1916. Both of these birds were adult.

Mr. C. B. Cory in his 'Birds of Illinois and Wisconsin,' 1912, p. 460, mentions a specimen taken by Chas. K. Worthen near Warsaw, Illinois. The second of the two above mentioned specimens was submitted to Mr. Cory for confirmatory identification.

The past season has witnessed an unusual flight of Goshawks in Iowa,

no less than thirty-three individuals having been examined, or reported to me by accurate observers in various parts of the State.— B. H. Bailey, *Cedar Rapids, Iowa.*

Chimney Swift Nesting in a Well.— On July 23, 1916, Mr. S. V. LaDow and I hopefully approached a well in an open field between houses along a highroad near Westfield, Bergen Co., N. J. It was a rather fancy well, with a curb about a yard high and four columns supporting a pointed roof, the whole affair of stone. But we found it evidently unused, as the water was about twenty-five feet down, scummy and with no means of drawing it. As we sat on the curb, a strange noise came from below; on repetition, we decided that it was of wings, probably a bat's. Hitting the inside of the well with a stick caused further repetition. Long looking revealed three blind, naked, pink-skinned Swifts (*Chætura pelagica*) in a nest attached to the smooth, rounded concrete wall about seven or eight feet down, and finally an adult (disclosed by the whitish throat) perched a little to one side, also against the concrete. The young wriggled a little and made faint but distinct squeaking. We withdrew and after a few minutes returned and found the old Swift sitting on the nest covering its babies, its face toward the wall.

As after gazing sorrowfully at the water, we had sat quietly for a space before the Swift flew, and as it had not flown upward to any extent as though to escape, perhaps the rather loud noise of the wings in flight was made to scare us away.

Though the file of 'The Auk' contains occasional records of the Chimney Swift's nesting in hollow trees and in buildings, I have found no record there or elsewhere of a nest in a well except in Bendire's 'Life Histories of North American Birds,' 1895, p. 178: "In a letter from Dr. William L. Ralph, dated San Mateo, Florida, May 19, 1895, he says: 'One of my men brought me the eggs of a Chimney Swift that he said he took from a nest attached to the sides of a well, 4 feet below the surface of the ground. He says they often nest in such places in this vicinity.' I consider this as a very unusual nesting site for this species."— Charles H. Rogers, *American Museum of Natural History, New York.*

***Muscivora tyrannus* (Linn.) in Massachusetts.**— On October 22, 1916, I saw a Fork-tailed Flycatcher perched on the top of a wire fence at the side of the main road a short distance below Gay Head Lighthouse, Martha's Vineyard, Mass. When disturbed by my repeated approach, the bird flew only a short distance each time, and returned to the fence. The conspicuously long outer tail-feathers and general coloration made it easily recognizable. Subsequently, by the kindness of Mr. Outram Bangs, of the Museum of Comparative Zoölogy, I have examined specimens of this and other species, which entirely confirm my identification.— Francis A. Foster, *Edgartown, Massachusetts.*

Prairie Horned Lark (*Otocoris alpestris praticola*) **Nesting at Newbury, Mass.**— On August 4, 1908, I discovered this species in a low brood tract, a short distance outside the city limits, locally known as 'Common Pasture.' This is nearly level, clayey, open pasture land extending from the rolling coastal hills on the west, down to the border of the salt-marshes, with an area of about two square miles, a region which I should think was well suited to the tastes and habits of this bird.

On this date I saw a single lark, in company with Vesper Sparrows, along the roadside, and for several days following noted the same bird in about the same locality, mingling freely with the sparrows, or alone.

Each season since 1908 I have found this species in about the same place. During the earlier years I saw rarely more than two or three birds but of late they have increased in numbers. In June, 1915, I found, and frequently saw throughout the remainder of the month and during early July two adults and five immature birds, which would seem to indicate their breeding here.

During the season of 1916, necessary attention to business precluded my searching for more substantial evidence of their breeding. The birds were present however throughout the greater part of the summer and I saw what were probably individuals from this family on one or two occasions in one of the neighboring towns. Apparently they have become regular summer residents.— S. W. Bailey, *Pittsfield, Mass.*

Starlings Nesting near Washington, D. C.— A pair of Starlings have taken up their abode in a locust tree on my place, eight miles north of Washington, D. C., and at the present date (25th of April, 1917) have young in the nest. I should be very glad to learn if others have noted Starlings nesting this year south of Pennsylvania. In this connection I would add that the male bird utters the notes that sound like a coarser and lower rendering of the Wood Pewee's usual three-note phrase, concerning which there was some comment in 'Bird-Lore' for March–April, 1911. This is the first time I have heard this utterance of the Starling, but from the pitch and quality of the notes I feel no hesitation in venturing the opinion that the phrase is normal with the bird and not an imitation of the Wood Pewee.— Henry Oldys, *Silver Spring, Maryland.*

A Pennsylvania Starling Roost.— For some years past an enormous flock of English Starlings has roosted in the evergreens at 'Aldie,' the estate of Mr. William R. Mercer, on the outskirts of Doylestown and during the winter of 1915–16 a number of Purple Grackles associated with them, being 'resident' for the first time within my experience.

The flock of Starlings presents the most interesting bird phenomenon I imagine, since the disappearance of the Passenger Pigeon. My attention was first called to the birds by the late Arthur Chapman, member of the Board of Game Commissioners of Pennsylvania, whose residence farm adjoined 'Aldie.' He estimated that there were a million birds in the

flock, but, while it was impossible to make an accurate estimate of the number, my impression is that Mr. Chapman's figure was far too low. The birds first began to assemble late in December, reached the largest number in January and early February, and from that time began to decrease until about the first of March, when all but a limited number disappeared.

I walked out to 'Aldie' to see this curious sight several times. On January 17, when the flock was as large as it was at any time, I stationed myself at the top of a gentle elevation in the Dublin Pike, about 500 yards from the evergreen roosting place,— a good point for observation. A few minutes after 5 o'clock in the afternoon the birds began to congregate from all directions, most of them coming from the north and west. In small flocks of from 50 to probably 500 they flew past me in rapid succession — flying low until they came to a tree in the open upon which they would alight. I could see the birds alighting upon other trees a quarter of a mile away, in flocks of varying sizes, while Chapman's woods, a large tract of timber, possibly thirty acres in extent, was black with the birds. The notes of many Purple Grackle were heard mingled with those of the Starlings. By 5.20 o'clock the birds grouped themselves in larger flocks and settled on trees nearer their roosting ground. Then, a few minutes later, as the twilight began to deepen, the birds arose, not by any concerted movement, but always in one flock from a tree, and gradually centred in one great flock directly over 'Aldie' — the flock soon becoming compact and deep and stretching out over an area of several acres. The writhing, twisting mass performed many curious evolutions and gyrations. At first the bird mass resembled very much a vast rolling black cloud, driven before a thunder-gust, the edges curling and overlapping and then broadening out. The individual birds on the outer edges of the flock could be distinguished, but it was the mass effect that was impressive. The whir of the countless wings was like the sound of distant wind or the roar of a waterfall. It was such an unusual sound that the horse driven by a farmer, who halted his team to talk with me, became frightened and so nervous that he was obliged to drive away. Gradually the cloud-like formation changed to funnel-shape, resembling nothing so much as a cyclone cloud and the change was made with a sound resembling that produced by a cyclone's sweep. Then the cloud-like mass changed again and lined up in plane formation, with a straight front like an army in battle array for a final charge. This line moved directly towards me overhead. Strangely enough, a line of Purple Grackles was in the forefront of the army, their larger size and darker color making them conspicuous. In fact the Grackles seemed to endeavor to keep on the outer edge of the mass as much as possible, and they were noticeable because they had difficulty in falling in with the rolling and more graceful flight-gyrations of their more numerous companions, the Starlings.

Frequently the whole vast flock made sharp turns, and as they did so it was with a sound that was audible for a long distance, somewhat like

the crack of a gigantic whip, only deeper, mellower and more voluminous. These evolutions were continued for fully ten minutes, when the vast flock began to settle into the evergreens for the night somewhat after the manner of Chimney Swifts dropping into a chimney. Then something, perhaps a hawk or a squirrel, would disturb them after nearly all the birds had secured a perch, and with a roar that was really awe-inspiring the whole flock would again take flight, circle over the trees for a few moments and again alight. This performance was repeated perhaps half a dozen times by all or a part of the flock until, just at dusk, they settled into the trees to rise no more that night. But they kept up an incessant chatter resembling the sound made by a locomotive in the distance blowing off steam, and it was long after dark, before this sound wholly died out. People interested in bird study came long distances to witness this sight.

It is possible this flock of Starlings may have been the cause of the Purple Grackle remaining here all winter. The weather was mild down to February 1. They did not seem to suffer for food until then. They associated with the Starlings until well into February, when they seemed inclined to flock by themselves. February, with its snow and low temperatures, alternating with warmer conditions, was rather hard on them, but a great deal of food was put out for them by people of the town, and they weathered the month out pretty well. Indeed, they seemed to suffer more from the bad weather which prevailed after the usual date of their arrival here from the south than they did prior to that time.

William R. Mercer, Jr., who resides at 'Aldie,' informed me that in the middle of January, following a snowstorm, he found thirty dead Purple Grackles and two or three dead Starlings at the roosting place. He estimated the total dead Purple Grackles there for the entire winter at about 40. The excrement from the roosting flock was in such quantity that it was hauled away in carts and was sufficient to fertilize a considerable area of ground.— GEO. MACREYNOLDS, *Doylestown, Pa.*

Evening Grosbeak at Birdsboro, Pa.— I would like to report the presence of a male Evening Grosbeak on the Brooke Estate, Birdsboro, Berks Co., Pa., on April 15, 1917. On April 22, accompanied by a party of students, I again saw what was apparently the same bird at the same place.— G. HENRY MENGEL, *Reading, Pa.*

The San Lucas Sparrow (*Passerculus rostratus guttatus*) in California. — Among some sparrows collected by the writer and sent to the U. S. National Museum are nineteen skins of this subspecies, a form not hitherto recorded from California. One male was obtained at Anaheim Landing, Orange County, Oct. 5, 1916, and eighteen skins, of both sexes, were collected at Sunset Beach, Orange County, between November 13, 1916, and January 31, 1917. A few examples of true *P. r. rostratus* were collected with them. The birds were identified by Mr. H. C. Oberholser.— EDWARD J. BROWN, *Los Angeles, Cal.*

Nelson's Sparrow in Vermont.— While watching the fall migration of sparrows on October 8, 1916, Mr. George H. Ross and the writer collected two adult male specimens of *Passerherbulus nelsoni nelsoni*. These are the first records for this bird in Vermont as far as the writer can ascertain. The birds were obtained in sedges in the wettest parts of swampy meadows adjacent to Otter Creek which runs from the Green Mountains into Lake Champlain. One of the birds was taken in Rutland and the other in Clarendon, about three miles apart. They were not in company of any other birds.— GEORGE L. KIRK, *Rutland, Vt.*

Bohemian Waxwing (*Bombycilla garrula*) in Colorado.[1]— The occurrence of this sub-arctic species in Colorado is always at irregular intervals and in varying numbers, so it is with pleasure that I place on record what has unquestionably been the largest flight in the history of Colorado ornithology.

The birds were first reported by Dr. W. H. Bergtold on February 22, a large flock having been seen, although at that time, the doctor was not sure of their identity; simply noting them as "a large flock of strange birds." In view of the developments of the next few days, however, there seems but little doubt that they were of this form.

They were first seen by the writer on the 26th; a flock of at least 200, observed in the Clear Creek valley between Denver and Golden, from which a number of specimens were secured. On the next day (the 27th) flocks began to appear around the Colorado Museum of Natural History in City Park, Denver. These were continually augmented until hundreds, if not thousands, were gathered in this area. Reports of their presence then began to come in from other parts of the city, some even from the business section, while the orchards and neighboring foothills were literally alive with them.

It was, of course, impossible to form an accurate estimate of their numbers, but one, which I consider conservative, put ten thousand birds within the corporate limits of Denver. All the parks contained large flocks, bunches of variable numbers were seen in all parts of the residence sections, and they were even noted from the office buildings in the business section.

The last occurrence of this species was during a corresponding season in 1908, when flocks of several hundred were observed by the writer and others, in the South Platte and Clear Creek valleys, over a period of about six weeks.— F. C. LINCOLN, *Denver, Colo.*

Regurgitation in the Bohemian Waxwing.— While studying this species during its present remarkable visitation to Denver, Colo., and its environs detailed elsewhere by Mr. F. C. Lincoln, I was struck by a curious regurgitation habit of the birds. It was first noticed while I was watching

[1] Through the co-operation of Dr. W. H. Bergtold, his extensive notes of this occurrence have been at my disposal, and are here included.— F. C. L.

a flock in Cheesman Park, where the birds were feeding on 'Russian Olives' and snow. After apparently becoming satisfied with food and snow, the birds would rest for a while in the trees, and then suddenly forcibly regurgitate a large quantity of clear fluid, which when it fell upon the snow, deposited undigested seeds. The same habit was noticed with a number of captive waxwings, which I was able to watch through the courtesy of Director J. D. Figgins of the Colorado Museum of Natural History (Denver).

It is highly probable that this queer habit of the Bohemian Waxwing has been spoken of before now; unfortunately I do not have access to avicultural magazines, or to such works as 'Bird Life in Sweden,' where it probably is on record, and hence I am now risking a duplication of a well known fact.— W. H. Bergtold, *Denver, Colo.*

Orange-crowned Warbler (*Vermivora celata celata*) in Cohasset, Mass.— On December 8, 14, 26, and 31, 1916, and January 9, 1917, I saw a single Orange-crowned Warbler, *Vermivora celata celata* in Cohasset, Mass. This is, as far as I know, the first specimen reported from this town, which is about twenty miles southeast of Boston, on the coast.

In each case it was with Black-capped Chickadees, with Myrtle Warblers near, and usually Hudsonian Chickadees, and Golden-crowned Kinglets. It was usually in small cedars, near the ground.

One point in Mr. Wright's paper in the January 'Auk' is of especial interest in relation to my own experience. He quotes Mr. Wayne as saying that the Orange-crown "never displays its crown patch while here in winter or early spring" and Mr. Wm. Brewster as saying that he has never seen the concealed crown patch shown by a living bird.

My first view of the bird was while observing, at about twenty feet, a Brown-capped Chickadee in a small cedar. (I think these birds are referable to *Penthestes hudsonicus hudsonicus* rather than *P. h. littoralis*, this winter.) Into my field came a yellowish green bird, which showed distinctly a reddish brown crown patch. In a moment it was gone to shrubbery near by and though I flushed it some half dozen times, I did not again see it at rest. The glimpse of the crown was only momentary, as the bird swung over on its side, showing the entire back but no underparts, but the impression of the reddish crown was very distinct.

On December 8 I had one brief glimpse of the bird in flight.

December 26 I had an excellent study of the bird, in a small scrub oak, under very good light conditions. The streaky breast was seen for the first time. On the 31st, with Mr. Chas. B. Floyd, I had another excellent study. This time the bird was in company with Black-capped Chickadees, Tree Sparrows, Purple Finches, Myrtle Warblers, and a Downy Woodpecker.

Today, January 9, I heard its call note for the first time, very different from the calls of the Myrtle Warbler, louder, clearer, and of different quality.— John B. May, *Cohasset, Mass.*

The Cape May Warbler at Washington, D. C., in Winter.— An adult female *Dendroica tigrina* was brought to the Division of Birds, National Museum, on December 16, 1916, by Mr. R. M. Brown, librarian of the Coast and Geodetic Survey, who had found it outside the window of his office at about 11 A. M. The weather was cold (temp. 13° F. at 8 A. M.) and the earth covered with snow, and the bird had probably had difficulty in securing food. It was, however, fairly active, and an effort was made to keep it alive. It fed eagerly on ripe banana, and seemed in condition to outlive its experience, but was found dead the next morning.

As an unusual coincidence, it is recalled that the only other winter record for this species in the vicinity of Washington is that of a male, collected on December 16, 1888, by Mr. J. D. Figgins.— CHAS. W. RICHMOND, *Washington, D. C.*

Kirtland's Warbler in Madison, Wisconsin.— On the afternoon of May 19, 1917, my wife and I while on an observing trip had the good fortune to come upon a female Kirtland's Warbler. For almost three quarters of an hour we subjected it to the closest inspection, often within an arm's length of it. It was tame to the point of idiocy, and during the last fifteen minutes of our intimacy almost paid the 'last full measure for its trust.' For in the absence of my collecting gun — a friend had borrowed it for the day — I assaulted it from every point of the compass. There is no definite Wisconsin record for this warbler. The nearest approach goes back to 1893 when a supposed specimen was wounded, only to escape under a brush-pile — as recorded in Kumlien and Hollister's 'Birds of Wisconsin.' The present specimen was scrutinized painstakingly from bill to toe and found to correspond accurately with published descriptions save that the black streaks on the crown were very faint; and that the patches on the inner webs of the tail-tips were dull gray rather than white, and like the crown marks not readily apparent. The tail-dipping was more incessant and deeper than that of the Palm Warbler. During the period of our inspection the bird never mounted higher than fifteen feet and preferred a plane within three feet of the ground.— WARNER TAYLOR, *Madison, Wisc.*

Yellow-throated Warbler in Brooklyn, N. Y.— On the morning of April 29, 1917, while walking through Prospect Park, Brooklyn, I was attracted by a loud ringing song quite strange to me, though somewhat suggestive of that of the Indigo Bunting. I easily located the singer in some low maple trees on the bank between the Rose Garden and Flatbush Ave. In its actions the bird was very deliberate, strikingly different from most members of its family in this respect. I was able to approach within a few feet as it was so tame or perhaps exhausted from its unusual journey, and I was thus able to identify it at my leisure.

I could see no trace of yellow in the line in front of the eye which would indicate that the individual belonged to the western race known as the

Sycamore Warbler, but as the amount of yellow is variable and the geographical probability is in favor of the Yellow-throated Warbler I leave the subspecific identification open. This is in all probability the same bird seen by Mr. Fleisher (Bird-Lore, 1917, p. 150) on the day previous and identified as the eastern subspecies. Later in the day I again saw the bird, in company with Mr. Preston R. Bassett. It was not singing on this occasion but was still so tame and deliberate in its movements that it was easily studied. Since then on subsequent visits to the same locality I have been unable to find any trace of the bird.—RALPH M. HARRINGTON, *Brooklyn, N. Y.*

Canada Warbler (*Wilsonia canadensis*) **Nesting in Southern Connecticut.**— On June 3, 1917, I was rewarded by finding a nest of this species at Hadlyme, New London County, Connecticut.

The female was flushed from its nest nearly under my feet.

The nest was near a large stream of water, not more than thirty feet away and in one of the most impenetrable places thickly covered with laurel bushes.

The nest was at the foot of a laurel bush, sunken level with the surface and composed of dry leaves, bark strips and lined with fine rootlets and grasses, etc. The ground was well carpeted with dry leaves.

The male could be heard singing most any time during the day on the wooded hillsides. While its mate was nesting in the low ravine below, some distance away. The male was never seen near the nest.

These birds have apparently nested in this vicinity for at least three summers arriving about May 5 and not leaving until September when most of our summer resident warblers have left.— ARTHUR W. BROCKWAY, *Hadlyme, Conn.*

The Hudsonian Chickadee (*Penthestes hudsonicus, subsp.?*) **in Lycoming County, Pa.**— On March 18, 1917, one of these birds was seen feeding with a single Black-capped Chickadee in some underbrush at the side of a road in a gap through the mountains, some fifteen miles east of Lock Haven, Pa. It happened that I was sitting on a log by the roadside when I noticed a small bird in a thicket near me and as I gazed at it, it hopped into plain view and showed itself to be a Hudsonian Chickadee. What first caught my eye was the splash of umber on its sides and the next instant the brownish gray head it turned toward me as it peered about for insects made me realize that there could be no doubt as to what it was. For fully half an hour I followed it about as it fed on or near the ground and I was interested to see how wren-like its actions were as it crept about logs and piles of brush. To my mind, it showed none of the nervous activity that I have always associated with our common Chickadee for it seemed rather deliberate in its actions. For the most part it was silent although it occasionally gave a feeble chirp and twice uttered a nasal "chick-a-dee-dee-dee" that was quite distinct from

that of its rather noisy companion. This is, as far as I can find, the farthest south that one of this species has ever been recorded, and is also the first record for the state of Pennsylvania.— THOS. D. BURLEIGH, *State College, Pa.*

Hudsonian Chickadee on Long Island.— The Hudsonian Chickadee (*Penthestes hudsonicus*) has appeared,— as was expected in this season of its unwonted southward flight,— upon Long Island.

On December 2, 1916, at Roslyn, Long Island, I was out searching for birds with Ogden Phipps, the eight-year-old son of Mr. and Mrs. Henry C. Phipps. We had heard Kinglets lisping in a patch of planted evergreens bordering a private roadway, and I was 'squeaking' with my lips to call them. What came was a brown-capped Chickadee. He sat on the outer twigs of a small blue spruce, about four feet above the ground and less than four yards from where we stood. We saw him well, as he fidgeted about in various postures, inspecting us, for several seconds. He did not make a sound, however, and after he had dodged back into the evergreen thicket, we could not find him again.

Immediately afterwards, though, we saw a White-winged Crossbill, which I understand is a rarity on Long Island and not recently recorded. This bird, a very dingy red (probably immature) male, perched in a tree-top in a deciduous wood near by, making his 'bleating' call-note, and then flew, twittering, down to the evergreens where the Tit had been, and we watched him at almost as close range as we had watched the Tit. Both species are birds with which I am very familiar. The spot where these two appeared is on the estate of Mr. S. Mortimer, close to Mr. H. P. Whitney's land.

On Saturday, December 16, the morning after the big snowstorm, several of us made a long search, both in the same tract of evergreens and in neighboring tracts, but we found neither Tit nor Crossbill. Out party consisted of Messrs. Nichols and Griscom from the American Museum of Natural History, Ogden Phipps, and myself. We saw a Siskin, three Robins, several Juncos, and, in a hardwood tract, a lively gathering of Kinglets, Creepers, Nuthatches (both kinds) and a Downy Woodpecker. This seemed a likely company for the rare Tit, but we could not spot him. It was a bleak day and the birds were restless and not very talkative.— GERALD H. THAYER, *Monadnock, N. H.*

RECENT LITERATURE.

Wayne's 'A List of Avian Species for which the Type Locality is South Carolina.'— This list [1] numbers 76 species, of which 52 were based solely or primarily on Catesby and 4 others in part on this author. It is interesting to note that 58 were named by Linnæus in his 'Systema Naturæ' (43 in the 10th edition and 15 in the 12th edition), 7 by Audubon, and the remaining 18 by various European authors, including 5 by Gmelin.

On comparing Mr. Wayne's list with the A. O. U. Check-List (1910) edition) the type localities given by Wayne agree in 54 cases with those of the Check-List; in most of the others the Check-List localities differ from Wayne's in being less definite, in several instances the range of the species as assigned by the original author being given instead of definite type localities. As in most of these cases Catesby is the most important reference cited by the original author, and evidently the one on which he mainly based his species, Mr. Wayne seems fully justified in giving in these instances the type locality as Carolina. In place of "North America," "eastern North America," "Carolina to New England," "eastern United States," "Virginia or Carolina," etc., Mr. Wayne substitutes Carolina.

In his introduction to the list Mr. Wayne refers at length to Catesby's great work, through which so many North American birds came to be described from "Carolina." He says: "It should be explained that although Catesby's book treats of Florida (the part now known as Georgia) and the Bahama Islands, as well as of Carolina, he devoted his time in Carolina to the study of birds and plants, while in the Bahama Islands he studied fishes. Nearly all his birds, therefore, are described from Carolina. . . .

"Although the province of Carolina originally included what is now both North and South Carolina, it is clear that Catesby's work was confined exclusively to the latter. His own description of his travels gives no indication of work beyond the borders of South Carolina. Furthermore, at the time Catesby wrote, the term Carolina was used to refer to South Carolina."

The Nonpareil (*Passerina ciris*) is not included in his list, but he states there is reason to believe that it "may be credited to South Carolina with as much propriety as to Vera Cruz, which is the type locality usually assigned." As Catesby described and figured the species, and his description is cited by Linnæus, it seems reasonable to definitely assign South Carolina to this species as its type locality.— J. A. A.

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[1] A List of Avian Species for which the Type Locality is South Carolina. By Arthur Trezevant Wayne, Honorary Curator of Ornithology in the Charleston Museum. Contributions from the Charleston Museum, III, pp. i–vi, 1–8. Charleston, S. C., 1917.

Chapin on the Classification of the Weaver-Birds.[1]— This notable paper is another result of Mr. Chapin's studies while a member of the American Museum's Congo Expedition, 1909–1915. The weaver-birds constitute the commonest family of African birds and no less than eighty-two forms were collected by the expedition so that Mr. Chapin had abundant opportunity to study them. He was early impressed by the similarity in nesting habits in species usually arranged in different sub-families, and subsequently a study of the curious markings within the mouths of the young, pointed to like relationships. A thorough study of the family after his return convinced him that the extent of development of the tenth primary which had generally been used as a sole criterion for the separation of the two subfamilies 'Ploceinæ' and 'Estrildinæ' was not a reliable character, when it failed to accord with those above mentioned, while the association of all the long-tailed species of the family was not a natural arrangement as some of them were obviously true 'weavers' (Ploceinæ) and not 'weaver-finches' (Estrildinæ). This latter fact had long been suspected by the reviewer and doubtless by others.

Mr. Chapin's investigations however did not stop here and in studying the relationships of the outlying genera he discovered that *Textor* possesses such striking structural peculiarities that it must be regarded as constituting a distinct family, *Dinemillia* and perhaps some other genera being probably associated with it. The skull of *Textor* differs from those of all other weavers examined in having the fenestræ associated with the orbital foramina different in form and number, and in the presence of an oblique ascending median bar. The sternum however exhibits the most remarkable peculiarity, as pointed out to the author by Mr. W. DeW. Miller, in the presence of a *spina interna*, the first recorded occurrence of this process in any passerine bird.

Parmoptila a genus which has been shifted about from the Sylviidæ to the Dicæidæ and Paridæ was suspected of being a weaver-finch by Mr. Chapin, and a subsequent examination of the young discovered the curious mouth markings almost as in *Nigrita*, while the character of the nest as described by Bates agrees with those of the weaver-finches.

Philetairus in all its structural features is apparently a finch and has been so considered by some authors, but its remarkable nest is so unlike those of the finches and so distinctly Ploceine, that Mr. Chapin prefers to keep it among the Weavers in spite of the extreme reduction in the tenth primary. We find all gradations in the size of this feather among the weavers and *Philetairus* may well be regarded as the culmination of the series, being the only genus to have reached the 'nine primaried' condition which is normal in the Fringillidæ.

Mr. Chapin's final arrangement differs from those of recent authors in the recognition of a distinct family, Textoridæ, for *Textor* and *Dinemellia;*

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[1] The Classification of the Weaver-Birds. By James P. Chapin. Bull. Amer. Mus. Nat. Hist., Vol. XXXVII, Art. IX, pp. 243–280. May 8, 1917.

in the rejection of the 'Viduinæ' either as a subfamily or a group and in the transference of *Spermospiza* from the Ploceinæ to the Estrildinæ (= Spermestinæ) and of *Quelea, Pyromelana, Euplectes, Urobrachya, Coliuspasser, Diatropura, Drepanoplectes,* and *Pseudonigrita* from the latter to the former. *Parmoptila* and *Pholidornis* are added to the Estrildinæ while *Philetairus* and *Anomalospiza* are retained in the same group.

An appendix contains brief accounts of the nest and eggs, and size of the outer primary in each genus, and in the Estrildinæ the mouth markings of the young as well. These are based upon Mr. Chapin's personal observations and the published accounts of others. A number of half-tone plates showing photographs of nests and drawings of the mouths of young birds complete this valuable paper which is one of the most important contributions to avian taxonomy that has appeared in America for some time.—W. S.

Pearson's 'The Bird Study Book.' [1]— Realizing from his own wide experience the many questions that beginners in bird study are constantly asking of those who are more advanced in the subject, Mr. Pearson conceived the idea of embodying in book form such information as would serve as answers to these queries, and the work before us represents the result of his efforts. He begins with general instructions as to the best ways to become familiar with wild birds, following with a discussion of the structure of birds' nests, their variability and where to look for them, and then an account of the domestic life of birds. The migration of birds and birds in winter very properly form the subjects of two separate chapters, as these are perhaps the two most popular topics in outdoor bird study.

All of this naturally leads up to that phase of the subject with which Mr. Pearson is especially identified — the protection of birds, to which all students of outdoor life will sooner or later be attracted. Chapters on the economic value of birds; the bird supply; the traffic in feathers; bird protective laws; bird reservations; bird sanctuaries and the teaching of bird study follow in natural order.

The work is admittedly intended primarily for the beginner, and the author seems to have been most happy in the character of the information which he has collected and in the manner of its presentation. 'The Bird Study Book' will give just the information that many persons are seeking, while the later chapters will give many more or less advanced field students an intelligent idea of the problem of bird protection and what has been accomplished towards its solution, thereby forestalling much well intended but misdirected effort.

Mr. Pearson has included many original incidents and ideas in his

[1] The Bird Study Book. By T. Gilbert Pearson, Secretary, National Association of Audubon Societies. Colored Frontispiece. Pen and Ink Drawings by Will Simmons and sixteen Photographs. Doubleday, Page & Company, Garden City, New York. 1917. 8vo, pp. i–xv, 1–258. Price $1.25 net.

various chapters and the book will well repay a careful perusal by all concerned with bird conservation. One point is especially worthy of consideration by game commissioners, who in spite of the evidence in favor of most hawks and owls are still inclined to recommend their unlimited slaughter, along with all other vermin, on game preserves, on account of their destruction of a certain number of game birds. Mr. Pearson cites a case in which such slaughter was carried on most thoroughly for the sake of protecting a large preserve of English Pheasants. The birds were later almost wiped out by disease and he says: "Is it going too far to say that the gunmen and trappers had over done their work? So few Hawks or Owls or foxes had been left to capture the birds first afflicted, that these had been permitted to associate with their kind and to pass on weakness and disease to their offspring until the general health tone of the whole Pheasant community had become lowered." All animals, as Mr. Pearson says, "have their part to play in the great economy of the earth, and it is a dangerous experiment to upset the balance of Nature."— W. S.

Henshaw and Fuertes on North American Warblers.[1]— The interest in this publication centers about the thirty-two Warbler pictures in colors reproduced from paintings by Louis Agassiz Fuertes. We have several times had occasion to congratulate the 'National Geographic Magazine' upon the splendid educational work that it is doing, in the publication of these colored pictures illustrating various branches of natural history, and once again we express our appreciation. The present pictures are larger than the former bird series, each one being half, instead of one third the height of the page and this of course presents the work of the artist to much better advantage. Mr. Fuertes has published warbler portraits before, notably the series in 'Bird-Lore' which appeared later in Chapman's 'Warblers' and those in Eaton's 'Birds of New York,' but we think the present figures are better than either, and they will give pleasure to thousands of bird students to whom the warblers are always the favorite group for study. Mr. H. W. Henshaw has written a descriptive text in which are embodied many interesting personal experiences of this veteran ornithologist, while the introductory pages discuss the relationship, migration and economic value of these interesting little birds, while frequent references to the publications of the U. S. Biological Survey enable the reader to follow up the subject at his pleasure.

The only flaw in this admirable publication is the caption to a half tone illustration from Chapman's 'Camps and Cruises,' which is used to fill out p. 303. It depicts an interesting family of young Blue Jays under which has been placed, without the authority of either Mr. Henshaw or Mr. Fuertes, we are sure, the following inscription: "Young Fish-Hawks about to Leave their Nest"!— W. S.

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[1] Friends of Our Forests. By Henry W. Henshaw. Illustrations by Louis Agassiz Fuertes. National Geographic Magazine, April, 1917. pp. 297–321.

Mrs. Bailey's 'Handbook of Birds of the Western United States.' [1] — The popularity of Mrs. Bailey's standard work on the birds of our western states is attested by the fact that a seventh revised edition has just been published by the Riverside Press. Since the appearance of the fourth edition, which was noticed in these columns in January, 1915, additions appear in the list of species to be added, while the list of proposed changes in the A. O. U. Check-List published in 'The Auk' for October, 1916, are printed in so far as they apply to western birds. The 'List of Birds of the Western United States in the Nomenclature of the 1910 Check-List' now appears under the caption 'Revised Ranges of Western Birds,' and contains additional matter. There are also many additional titles in the supplement to the list of 'Books of Reference.'

All of these additions tend to bring the work up to date and give us the very latest information on the birds of the west, a region in which bird students are increasing at a wonderful rate, while its avifauna is steadily becoming of greater interest to eastern bird students owing to the increasing travel in the west during recent years.— W. S.

Dr. Casey A. Wood on the Fundus Oculi of Birds. [2]— There are many points in the anatomy and physiology of birds upon which the ornithologist needs light but which he finds himself unfitted to investigate because of his lack of technical training in these special lines of research. This is of course perfectly natural as ornithology like any other branch of systematic zoölogy is so broad a subject and so intricately related to various special lines of investigation that no one man could possibly speak authoritatively upon all its aspects. It is fortunate therefore that specialists upon anatomy, physiology, etc., who lay no claim to being ornithologists, are willing from time to time to give us the benefit of their special training, and to elaborate the particular line of research to which they have devoted their lives, in its relationship to ornithology.

In studying the systematic relationship of any group of birds or the behaviour of a certain species, the ornithologist may have occasion to consider the power of hearing or sight, but without the special or technical training possessed by the medical practitioner who has specialized upon these subjects his deductions are likely to be faulty if not absolutely absurd. With the results of the specialists' researches before him however, he can make use of data on these topics without danger of error.

One special work of the kind we have in mind which might be mentioned

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[1] Handbook of Birds of the Western United States. Seventh edition, revised. Houghton and Mifflin, Boston and New York, 1917. Price $3.50 net.

[2] The Fundus Oculi of Birds Especially as viewed by the Ophthalmoscope. A Study in Comparative Anatomy and Physiology. By Casey Albert Wood. Illustrated by 145 drawings in the text; also by sixty-one colored paintings prepared for this work by Arthur W. Head, F. Z. S. London. Chicago, Lakeside Press. 1917. 4to, pp. 1–181. Price, until March 15, $12.50. After that date $15. H. A. Fox, publisher, Chicago Savings Bank Bldg., State and Madison Sts., Chicago, Ill.

in this connection as it does not seem to have ever been noticed in 'The Auk' is Reichert and Brown's monograph [1] on hemoglobin crystals in which the structure of these crystals in the blood of various birds as well as other vertebrates is discussed and its weight as a taxonomic character considered.

Another work of the same class is Dr. Wood's beautiful monograph on the eyes of birds which is now before us. This work deals mainly with the fundus oculi, or the back part of the eye, as viewed through the pupil by means of the ophthalmoscope, and presents in the main observations of the eyes of living birds, although studies have also been made of prepared specimens of birds' eyes and of eyes of birds recently dead as well as microscopic studies of the tissues.

The topics considered in the various chapters may be outlined as follows: A review of the anatomy and physiology of the organs and tissue seen in the fundus oculi; explanation of the ophthalmoscope and its use; study of the fundus of living birds through the ophthalmoscope,— the eye-ground, pecten, areas of acute vision, etc.; study of the fundus in prepared specimens; effect of domestication on the fundus oculi of wild birds; the appearance of the fundus in the various orders of birds; the ocular fundus in relation to a classification of birds; relation of reptilian to avian fundi. The work is illustrated by sixty-one beautifully prepared color plates from paintings by Mr. A. W. Head, of the fundi of various species of birds, as well as numerous outline cuts in the text.

Birds according to Dr. Wood possess the most highly developed vision of any of the classes of vertebrates. They exhibit several different foveæ or areas of acute vision, some concerned only with monocular vision, others with binocular. "Birds with double foveae", says Dr. Wood, "have exceptionally good eyesight with each eye separately; they are by this effective combination, enabled not only to command a view of the highest efficiency over the whole horizon, but also have the power to concentrate it when needed upon particular objects invisible or indistinctly visible to other species not so provided." But he adds "only when the histology, pathology, and experimental physiology of the avian cerebral organs and their connections have been worked out, as they have been in man, shall we know how the paths pursued by 'brain currents' involved in this switching from monocular single vision to binocular sight, run and are controlled."

Dr. Wood shows that there are six different arrangements of the areas of acute vision which seem to correspond quite closely with the habits of the birds, the gallinaceous birds all coming under one head, the owls under another and the terns and swallows under a third.

In the last chapters of the work he describes and figures in detail the structure of the fundus, the location of the areas of acute vision and the shape of the pecten, in a large number of species representing practically

[1] Crystallography of Hemoglobins. Publ. 116, Carnegie Inst., Washington, D. C., 1909.

all the principal types of birds, and indicates the possibilities of using characters drawn from these structures in the systematic arrangement of the class Aves.

Dr. Wood is to be congratulated upon his success in securing such a representative lot of material and such splendid results — a task which must have required much time and patience, as well as upon providing for ornithologists a work of reference on a subject upon which very few have had any accurate knowledge. The value of Dr. Wood's researches to ophthalmology must also be very great and his work furnishes another instance of the praiseworthy tendency of modern medical research to carry investigation beyond the human subject through the lower types of vertebrates.

The publishers have done their part of the work well and both plates and text are beautifully printed. The only regrettable feature is the lack of an index which would have enabled the reader to bring together scattered information dealing with single topics.— W. S.

Mathews' 'The Birds of Australia.' [1] — Two thick parts of Mr. Mathews' great work have appeared since the last notice in these columns. While the paper and typography remain fully up to the high standard that the publishers have set, we think that some of the recent plates are not equal to those of the early numbers. The parrots which furnish the subject matter of these last two parts present a gorgeous array of species and the plates are among the most brilliantly colored of any that the work will contain.

The text is very full and as usual is devoted largely to a discussion of questions of nomenclature and taxonomy. We feel sometimes that the author would have made his points clearer if he had condensed his discussion, for in his praiseworthy efforts to present all the evidence to the reader, he has reprinted large sections from his previous publications which sometimes tend to confuse, especially when double sets of quotation marks are used as on page 234, where it looks at first sight as if some of the quoted "subspp. n." appeared here for the first time.

The accounts of the various species are based upon the observations of Mr. Mathews' correspondents in Australia as well as upon published accounts and appear to bring the subject fully up to date. The frequent allusions to former abundance and present day scarcity among these splendid birds will be read with regret by all who peruse Mr. Mathews' pages.

As to matters of nomenclature, those who enjoy delving into puzzling problems will find plenty to occupy their attention in the parts before us. The discussion under the genus *Kakatoë* is particularly interesting. The A. O. U. Committee on Nomenclature some years ago adopted certain

[1] The Birds of Australia. By Gregory M. Mathews. Vol. VI. Part II, February 6, 1917. Part III, April 17, 1917.

generic names from Cuvier's 'Lecons d'Anat. Compt.,' 1800. This action has lately been endorsed by the International Commission which necessitates the recognition of certain other names from the same source which do not figure in North American ornithology, and which had therefore not been taken up by the A. O. U. Committee. Among these is *Kakatoë* the type of which Mr. Mathews fixes as *Psittacus galeritus* Lath., and which he adopts in place of the later *Cacatoës* of Dumeril which he had previously used and for which he had selected the same species as type. Recently he has discovered that Froriep years before had selected as the type of *Cacatoës, Psittacus cristatus* a species which some authors have considered unrecognizable. Now if these two generic names are regarded as simply different spellings of the same word the question arises whether Froriep's designation of a type for the later one does not force us to accept the same type for the earlier one; in which case both may have to be rejected as based upon an unidentifiable species. Mr. Mathews thinks not, and we agree with him, but in order that the group, to which *galeritus* belongs will be sure to have a name he proposes *Eucacatua* for it, with the rather unique remark: "My name will become a synonym if my conclusions be accepted, but will come into use if they are rejected"!

Another of these early Cuvierian names is *Psittacula* which as used in the 'Lecons' has for its type '*Palæornis*' *alexandri*. *Conurus*, as has been pointed out for some time, must also be applied to the same group and being of earlier date than *Palæornis* has been used in place of it by some recent authors. Now however, we have the still earlier *Psittacula*, which as Mr. Mathews points out, must be employed for these birds, while the group for which it was formerly used will be known as *Forpus* Boie 1858. Mr. Mathews has made one change to which especial attention might be called, i. e. the name *Callocephalon* which has been variously emended into *Callicephalus*, *Callocephalum* etc., is rejected on account of an earlier *Calocephalus*. While we think that this is in accord with the A. O. U. Code we have been unable to find that the International Commission has as yet taken any action on the vital question of the status of emendations and variant spellings. We therefore are at a loss to understand Mr. Mathews' statement; "The International Commission have decided upon the item, 'errors of transliteration' in the recognition of their amendment." Has he not confused proposed amendments with those actually adopted?

Among the several questions of taxonomy that are discussed in the present installments of the work is one regarding the status of the genus *Ducorpsius*. According to Mr. Mathews it is exactly like *Licmetis* in every detail of structure and coloration, except for the longer bill of the latter, and he therefore thinks that the two should be united.

The difference in the bill, if constant, might easily we think be sufficient ground for generic separation but a far more important argument for uniting the two is found in the text under *Licmetis tenuirostris*, i. e. the admission that a race referred by Mr. Mathews to *Ducopsius sanguineus*, "might be almost as well classed as a subspecies of *Licmetis tenuirostris*."

This seems to show that the relative size of the bill is not a constant difference.

We had occasion to criticise the brevity of some of Mr. Mathews' diagnoses in former parts of his work, and the general lack of measurements. He says in reply to this criticism (p. 148) "if I gave pages of measurements, as is the custom of my American friends, it would not prejudice any worker in favor of my subspecific forms," and adds, "the work [of measuring] must be done, but the results only are necessary, not the methods whereby the results were achieved." Mr. Mathews seem to have misunderstood our criticism. We did not demand all the individual measurements, we quite agree with him on that point. What we did demand were measurements of *some* sort, either averages or those of a typical individual, in all cases where relative size is taken as the basis for subspecific differentiation. In the present numbers of the work there are a gratifying number of measurements.

The following new forms are proposed in the two parts before us. In Part II: *Calyptorhynchus banksii samueli* (p. 120), Cent. Austr.; *Callocorydon fimbriatus superior* (p. 158), N. S. Wales; *Kakatoë galerita interjecta* (p. 184), Victoria; *K. g. aruensis* (p. 187), Aru Isl.; *Lophochroa leadbeateri superflua* (p. 196), S. Australia; *Ducorpsius sanguineus westralensis* (p. 211), Mid-west Australia; *D. s. normantoni* (p. 211), Queensland.

Also the following new genera: *Callocorydon* (p. 150), type *Psittacus fimbriatus* Grant. *Eucacatua* (p. 169), type *Psittacus galeritus* Lath.

In Part III: *Eolophus roseicapillus howei* (p. 234), Victoria; and the new genus *Layardella* (p. 289), type *Psittacus tabuensis*. This takes the place of *Pyrrhulopsis* Reich. which is based upon an unidentifiable figure of the head of a parrot.— W. S.

Matthew and Granger on Diatryma.[1]— Mr. William Stein of the American Museum's Paleontological Expedition of 1916, was fortunate enough to discover a nearly complete skeleton of this remarkable bird previously known only from a few fragments obtained by Prof. E. D. Cope in 1874, in the Wasatch formation of New Mexico, and some others obtained in the Eocene of Wyoming, in 1911, by Mr. Granger. A single toe bone from the Eocene of New Jersey described by Prof. Marsh as *Barornis regens* has been referred to the genus by Dr. Shufeldt, but is regarded by the present authors as "practically indeterminate."

For the first time therefore we are able to determine what this extinct bird looked like and what are its relationships. It was about seven feet in height, ground-living, with vestigial wings, and with a shoulder girdle remarkably like that of the Cassowary. The resemblance to the Ratite birds is however considered by the authors to be due to parallelism and

[1] The Skeleton of Diatryma, a Gigantic Bird from the Lower Eocene of Wyoming. By W. D. Matthew and Walter Granger. Bull. Amer. Mus. Nat. Hist., Vol. XXXVII, Art. XI, pp. 307–326. May 28, 1917.

Diatryma is to be regarded as a primitive Carinate form most nearly related to *Cariama* among existing birds, although it was probably only an early offshoot from the line of which *Cariama* is the sole survivor, and not intimately related to it. It had an enormous skull measuring seventeen inches in length consisting mainly of a hugh compressed beak. In this character it resembles the extinct *Phororhachos* of the South American Miocene but there the resemblance apparently stops.

Fossil birds as we know are extremely rare and the authors regard the discovery of the skeleton of *Diatryma* as a fifth landmark in the history of fossil ornithology, the earlier ones being the discoveries respectively of *Archæopteryx*, of the Jurassic; the Toothed Birds of the Cretaceous — *Hesperornis* and *Ichthyornis*; the Moas of New Zealand; and *Phororhachos* of the South American Miocene. *Diatryma* lived during the Lower Eocene near the beginning of the Age of Mammals and was a contemporary of the Four-toed Horse, *Eohippus*.

The corresponding bones of the complete skeleton seem to differ from those described by Cope as *Diatryma gigantea* as well as from Mr. Granger's specimens named *D. ajax* by Dr. Shufeldt, so it is described as a distinct species, *D. steini*, in honor of the discoverer. In their concluding pages the authors make some very pertinent remarks regarding fossil birds. They commend the revision of the fossil birds of North America and the figuring of the types, but call attention to the provisional nature of all the identifications, and the fragmentary and inadequate character of the material. "The identifications should not be changed but they should always be understood as comparisons and not as positive references." "They afford no ground for concluding that the antiquity of modern groups of birds is greater than that of modern groups of mammals. Nor, on the other hand, does it appear that they were notably less ancient."— W. S.

Dabbene on New Species of Geositta and Cinclodes.[1]— In this paper Mr. Dabbene states that his researches have enabled him to recognize no less than 30 species of these two genera of which seventeen are residents of Argentina. The following are described as new: *Geositta punensis* (p. 54), La Guiaca, Province of Jujuy; *G. rufipennis Burmeisteri* (p. 55), El Volcon, Province of Jujuy; *Cinclodes Oustaleti hornensis* (p. 58), and *C. antarcticus maculirostris* (p. 59), Isla Hermite, Cape Horn.— W. S.

Chapman on Santo Domingo Birds.[2]— In spite of the many explorations in Santo Domingo the avifauna, even at this late date, does not seem

[1] Especies y Subspecies Aparentemente Nuevas de Geositta y Cinclodes de la Republica Argentina y del Sur de Chile. Por Roberto Dabbene. Physis III, pp. 52–59. March 17, 1917.

[2] Descriptions of New Birds from Santo Domingo and Remarks on Others in the Brewster-Sanford Collection. By Frank M. Chapman. Bull. Amer. Mus. Nat. Hist., Vol. XXXVII, Art. XII, pp. 327–334. May 14, 1917.

to be thoroughly known. Following on Dr. Wm. L. Abbott's remarkable discoveries, noticed recently in these columns, come the results of Mr. R. H. Beck's explorations on the island, carried on in the interests of Mr. F. F. Brewster and Dr. L. C. Sanford, during the early part of the present year. Mr. Beck visited Mt. Tina and other points in the province of Azua and secured numerous specimens of the crossbill and finch discovered by Dr. Abbott, and also a new species of ground dove, a new goatsucker and a new warbler. These Dr. Chapman has described in the paper before us as: *Oreopeleia leucometopius* (p. 327), Mt. Tina; *Microsiphonorhis* (gen. nov.) *brewsteri* (p. 329), Tubano, allied to *Siphonorhis* and *Microligea montana* (p. 330), Mt. Tina.— W. S.

Sclater on the Birds of Yemen.[1]— Mr. G. Wyman Bury who spent a year in the province of Yemen in southern Arabia making zoölogical collections for the British Museum in 1912 and 1913, secured a series of over 400 bird skins. Eight of these represented undescribed forms which have been duly published by Mr. Ogilvie-Grant while Mr. Sclater in the present paper lists the entire collection adding the field notes of the collector and other comments. In all 111 forms are listed, 27 of which besides the new forms had not previously been recorded from southern Arabia. An interesting historical note describes the various explorations of southern Arabia the earliest of which were those of Forskål (1761–63), Hemprich and Ehrenberg (1825) and Rüppell a little later. Both Forskål and Hemprich "sacrificed their lives to their enthusiasm," the one dying at Yerim and the other at Massowah. A map and a colored plate of *Pseudacanthis yemenensis* and *Accentor fagini* complete Mr. Sclater's interesting paper.— W. S.

Henninger on the Ornithological Work of Dr. E. I. Shores.[2]— The collection and manuscript diary of Dr. Shores having recently come into the possession of Mr. Henninger he has prepared a very appreciative notice of Dr. Shores, who was apparently born in the late 50's and who died in Schenectady, N. Y., May 6, 1906, and has added the more important records contained among his notes. These refer in the main to Suffield, Conn. and West Bridgwater, Mass., but there are also records for other parts of New England and for Florida. Some of these have already been published but those compiling New England lists will do well to consult Mr. Henninger's paper. It is unfortunate that so many collectors who have extensive ornithological knowledge have published nothing and too often have left not even a manuscript record. When the latter does exist it is most commendable for those who may have access to it to make it public as Mr. Henninger has done in the present case.— W. S.

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[1] The Birds of Yemen, south-western Arabia, with an account of his journey thither by the collector, Mr. G. Wyman Bury. By W. L. Sclater. The Ibis, April, 1917, pp. 129–186.

[2] The Diary of a New England Ornithologist. An Appreciation. Wilson Bulletin, March, 1917, pp. 1–17.

Rhinebeck Birds and Seasons.[1]— The numerous 'Bird Clubs' that are springing into existence all over the country find it necessary to issue some sort of annual report which is often enlarged, by the addition of special articles and illustrations, into quite a pretentious publication. With men of experience to guide them such as Mr. Baynes in the Meriden Club, and Mr. M. S. Crosby and Mr. Clinton G. Abbott in the Rhinebeck Club, these brochures may be made into valuable contributions to ornithological literature.

The present publication is one of these and gives an excellent resumé of methods to attract birds; an account of the winter bird life of the vicinity of Rhinebeck, N. Y.; the spring and autumn migration and the nesting season, all of which abound in accurate dates drawn from Mr. Crosby's large experience. As these clubs increase in their number of trained observers why cannot they conduct coöperative studies of at least the spring migration in their vicinity? Such work under competent direction is much more valuable than that of scattered individuals, and the director, knowing the members of his corps personally, can form a better estimate of the accuracy of their work than a distant compiler, and censor the manuscripts accordingly. The results can then be communicated to some center, national or state as the case may be, and the work of the central compiler greatly reduced. The methods of coöperative work adopted by the Delaware Valley Ornithological Club for the past sixteen years are well worth studying in this connection.

Meanwhile we have only praise for the 'Report of the Rhinebeck Club' which is not only valuable for its contents but is a neat and attractive piece of book-making.— W. S.

Shufeldt on Fossil Birds from Florida.[2]— In a paper by Mr. E. H. Sellards on 'The Association of Human Remains and Extinct Vertebrates at Vero, Florida' there are two pages on the fossil birds of the Vero deposit, contributed by Dr. Shufeldt in advance of his complete report. The following new names are here proposed, *Querquedula floridana*, *Larus vero* and *Ardea sellardsi*. The first two are nomina nuda as no descriptions accompany them, the last must however, rest upon the diagnosis here given. Nothing whatever is gained by quoting these new names in advance as is here done, except to provide a stumbling block for all bibliographers of the future. The rules of nomenclature are clear enough as to the fact that there is no such thing as a 'preliminary' description. The

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[1] Rhinebeck Birds and Seasons. Articles Published in the Rhinebeck Gazette October 3rd, 1914, to September 25th, 1915. By Maunsell Schiefflin Crosby. Illustrated with Photographs by Members of the Rhinebeck Bird Club. To which is added the Second Annual Report of the Rhinebeck Bird Club. Published by the Rhinebeck Bird Club, Rhinebeck, N. Y. 1916.

[2] On the Association of Human Remains and Extinct Vertebrates at Vero, Florida. By E. H. Sellards. Reprinted from The Journal of Geology, Vol. XXV, No. 1, Jan.–Feb., 1917. Report on Fossil Birds from Vero Florida. By R. W. Shufeldt. pp. 18–19.

first description is the original description upon which a name must stand, and in these days there is absolutely no excuse for such careless practises. When so much time has to be taken up in going over the imperfect work of the older writers it is hard to understand why present day authors persist in perpetrating the same sort of crimes against taxonomy, to trouble future generations. 'The Auk' has no personal feeling in such cases, but is doing its utmost to discourage careless systematic work and to persuade all journals to insist upon full and adequate diagnoses of new forms.— W. S.

'Cassinia'.[1]— With the current issue of the Delaware Valley Ornithological Club's annual, Dr. Spencer Trotter assumes the duties of editor. The high type of the publication both as to typography and character of contents is fully maintained and both the editor and the Club are to be congratulated upon the appearance of this, the sixteenth annual number.

The opening article is by Dr. Trotter and is an interesting biography of Wm. P. Turnbull, author of that beautiful little brochure on the 'Birds of East Pennsylvania and New Jersey' which Dr. Coues refers to as "the best printed treatise on American birds extant" and in which his amanuensis found "no typographical error after close scrutiny."

Henry W. Fowler, the president of the Club, presents a list of 'Some Rare or Unusual Birds in Upper Philadelphia', supplementary to a previous list published in 'Cassinia' fourteen years ago.

An excellent account of the nesting of the Least Bittern is furnished by Julian K. Potter, who fortunately studied the habits of the birds and development of the young, and photographed the nest at various stages, thereby adding to our knowledge of the species to an extent that could not be done by the mere collecting of the set of eggs.

Thomas D. Burleigh contributes a list of breeding birds from Samar, Clinton Co., Pa.

The usual 'Report on Bird Migration' and 'Abstract of the Proceedings of the Club' close the number. Those possessing this issue should make sure that reprinted pages have been substituted for pp. 27–30 which contained errors in the migration tables.— W. S.

Shelton's Land Birds of West Central Oregon.[2]— In this well prepared bulletin Mr. Shelton presents a list of 143 species with the status of each in the district under consideration, which is nearly coincident with the boundaries of Lake County. The method of treatment follows that of Dr. Joseph Grinnell's distributional list of California birds with the synonyms omitted. An introduction discusses the life zones of the area,

[1] Cassinia, Proceedings of the Delaware Valley Ornithological Club, of Philadelphia. 1916. Issued March, 1917. pp. 1–58.

[2] A Distributional List of the Land birds of Western Oregon. By Alfred C. Shelton. University of Oregon Bulletin, New Series, Vol. XIV, No. 4. January, 1917. 8vo, pp. 1–51, figs. 1–10.

the physical features of each being described as well as the characteristic forest trees. We note that two Transition Zones are recognized; a 'Normal Transition' covering most of the interior, and a 'Humid Transition' occupying most of the coast, the Canadian being limited to a very narrow strip immediately on the ocean. The nomenclature is essentially that of the A. O. U. Check-List although certain forms not accepted in that publication are considered valid by Mr. Shelton, though his reasons are not stated.

In the introduction we learn that the distributions are based largely upon work carried on in the interests of the University of Oregon, while the collection of the Oregon Fish and Game Commission was also placed at the author's command. The half-tone illustrations are from photographic views of typical areas in the several zones.

Mr. Shelton is to be congratulated upon a very creditable piece of work, which will no doubt stimulate others to carry on local distributional work in Oregon on the same plan that Dr. Grinnell and his associates have done in California.— W. S.

McGregor on New or Noteworthy Philippine Birds.[1]— *Leucotreron merrilli* (269) is described as new from Luzon while notes on the occurrence of *Platalea minor, Ardea cinerea, Totanus stagnatilis, Sporaginthus amandava* in Luzon; and of *Pycnonotus plumosus* on Cagayan Sulu Island, the fauna of which is more Bornean than Philippine.

In *Platalea* Mr. McGregor found a curious diminutive feather at the base of the first primary. A note from Dr. C. W. Richmond is published in this connection calling attention to the discovery by Prof. Baird, many years ago, of similar feathers on the wings of Vireos.— W. S.

The Ornithological Journals.

Bird-Lore. XIX, No. 2. March–April, 1917.

The Great Blue Herons of Honeoye. By Verdi Burtch. An excellent study of a New York heronry, with good photographic illustrations.

The Purple Martin at Wichita, Kansas. By R. H. Sullivan. Migration and nesting data.

The Educational Leaflet treats of the Sage Grouse and Dr. Chapman discusses the plumages of the Marsh, Winter, House and Bewick's Wrens, with a colored plate by Fuertes, which brings this series to a close.

Bird-Lore. XIX, No. 3. May–June, 1917.

Our Neighbors of the Grape-Vine. By T. Macklin. A study of nesting Robins.

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[1] New or Noteworthy Philippine Birds. By Richard C. McGregor. Philippine Jour. of Science, XI, No. 4, Sec. D, July, 1916. pp. 269–275.

Bird Gardening on Cape Ann. By F. G. Speck.

A New department is called 'The Season' edited by Mr. Charles H. Rogers, with reports of the condition of bird-life for each two month interval by local authorities in six different regions surrounding the following centers; Boston, New York, Philadelphia, Washington, Oberlin, Ohio and Kansas City.

The Educational Leaflet treats of the White-throated Sparrow, with a colored plate by Sawyer.

The Condor. XIX, No. 2. March–April, 1917.

An Annotated List of the Birds of Fremont County, Idaho, as Observed During the Summer of 1916. By Henry J. Rust.— An excellent annotated list of 103 species with photographs of the country and nests of the Green-tailed Towhee, Brewer's Sparrow and other species.

Some Notes on the Effects upon Bird Life, of the Corpus Christi Storm of August 18, 1916. By R. A. Sell.— We wonder if the author and editor realize that in the final paragraph the Scarlet Ibis which stood on the mass of drift "like a garnet in the sands, or a rosy promise of the morning sun" is the first record of the species for Texas and only about the sixth for North America.

Birds of the Humid Coast. By Florence Merriam Bailey (continued).

A List of Birds Breeding in San Francisco County, Cal. By H. E. Hansen and W. A. Squires.— Seventy species.

Geographical Variation in *Sphyrapicus thyroideus*. By H. S. Swarth.— The Rocky Mountain bird is separated as *S. t. nataliæ* (Malherbe).

An Abnormal Egg of *Fulica americana*. By Alexander Wetmore.

Names of Writers on California Birds. By T. S. Palmer.— Completes many names which were not given in full in Grinnell's Bibliography.

The Wilson Bulletin. XXIX, No. 1. March, 1917.

The Diary of a New England Ornithologist. By W. F. Henninger.— See *antea*, p. 356.

A Coöperative Bird Census at Washington, D. C. By H. C. Oberholser. — Thirteen parties participated, each covering a different section. Total number of species observed, 129; total number of individuals, 12,257. The average number of species for each party was 66, the number varying from 51 to 91, with one record of only 34. Of 16 species only a single individual was seen. The count was made on May 12, 1913.

Remarks on the Mid-May Census. By W. DeW. Miller and C. H. Rogers.— Argues for accurate counts of individuals, not estimates. Cites apparent errors in the list of L. S. Kohler; and questions his record of the breeding of Wilson's Warbler in New Jersey.

The Correlation between the Migratory Flight of Birds and Certain Accompanying Meteorological Conditions. By Frank Smith.— Claims a distinct correlation.

The Oölogist. XXXIV, No. 3. March 5, 1917.

Some Nesting Birds of the Judith Basin, Montana. No. 2. By P. M. Silloway.

A Collecting Trip in Southern California. By J. B. Dixon.

The Oölogist, XXXIV, No. 4. April 15, 1917.

A Day and Night on Buck Hummock [Ga.]. By T. D. Perry.

The Oölogist. XXXIV, No. 5. May 15, 1917.

White-tailed Hawk. By D. B. Burrows.

The Bluebird. IX, No. 3. February, 1917.

A Guest from Central America. By C. J. Stanwood. A sketch of the Magnolia Warbler, with photographs of nest and young.

Home of the Black-crowned Night Heron. By E. L. Jack. Well illustrated.

The Bluebird. IX, No. 5. April, 1917.

An Experience with Evening Grosbeaks. By C. M. Barrows. An interesting account with the most important item — *i. e.* the locality, omitted.

The Black-throated Green and Magnolia Warblers. By C. J. Stanwood. Illustrations of the nest and young of the latter.

Rara Liber. By A. L. Shepherd.— A curiously garbled account of Audubon's 'Birds of America'. The original edition appeared 1827–1838 not 1844, while the "1840 edition" in which Audubon was assisted by "a man who furnished the technical, scientific portion" was really the 'Ornithological Biography,' the text to the plates, and appeared 1831–1839. Why the Free Library of Allegheny, Pa., is singled out as the possessor of a volume of the work when there are many institutions in America which have all four volumes, it is hard to understand. It is unfortunate that such misleading articles find their way into print.

Australia's Wild Birds. By Charles Barrett.— Illustrated with photographs of interesting Australian species and their nests.

The Ibis. X Series, V, No. 2. April, 1917.

The Birds of Yemen, south-western Arabia. By W. L. Sclater. See *antea*, p. 356.

Some reflections on the Breeding-habits of the Cuckoo (*Cuculus canorus*). By Major H. F. Meiklejohn. A lengthy paper in which the theories of Dr. Rey are considered at length and a number of his conclusions questioned. Much space is given to the discussion of the various types of Cuckoo eggs and their bearing upon the general question. That this has little to do with the cause of the parasitic habit might be argued from the fact that the color of the eggs of the Cowbirds is remarkably uniform in each species.

Note on the Nidification of some Indian Falconidæ. By E. C. Stuart Baker.

Note on the Acclimatisation of the Australian Black Swan (*Chenopsis atrata*). By R. T. Gunther.

Obituary. F. C. Selous. Killed in action in East Africa, January 4, 1917.

Bulletin of the British Ornithologists' Club. CCXXI, January 2, 1917.

Discussion on the causes governing the number of eggs in a clutch.

M. J. Nicoll described two new Egyptian birds; *Sylvia norrisæ* (p. 28), Lake Karun, Fayoum and *Prinia gracilis natronensis* (p. 29), Wadi el Natron, Lower Egypt.

Bulletin of the British Ornithologists' Club. CCXXII, March 6, 1917.

Dr. E. Hartert described two new birds from Venezuela; *Synallaxis terrestris bolivari* (p. 31), Silla de Caracas, and *Vireo josephæ mirandiæ* (p. 32), Galiparo, Cerro del Avila.

Discussion on the effect of the severe frost of the past winter on bird life.

Bulletin of the British Ornithologists' Club. CCXXIII, April 12, 1917.

Rothschild and Hartert described as new, *Myzomela eichorni interposita* (p. 38), New Georgia, Solomon Islands.

Bulletin of the British Ornithologists' Club. CCXXIV, April 24, 1917.

Dr. Hartert pointed out two races of *Myrmecocichla arnotti*, the East African form of which will be known as *M. a. leucolæma* Rchw. He also described as new *Phylloscopus trochiloides fokiensis* (p. 43), Kuatun, Fokien.

Mr. H. F.Witherby described *Anthus trivialis haringtoni* (p. 44), Gittidas, Kaghan Valley, N. W. India.

British Birds. X, No. 9. February, 1917.

On the European Forms of the Cormorant and Little Bustard. Condensed from an article in the 'Novites Zoologicæ'.

Some Results of Ringing Song Thrushes, Blackbirds, Lapwings and Woodcock. By H. F. Witherby.

British Birds. X, No. 10. March, 1917.

Ornithological Notes from Norfolk for 1916. By J. H. Gurney.

British Birds. X, No. 11. April, 1917.

Three Birds New to the British List. By J. B. Nichols and Thos. Parkin.— *Melanocorypha calandra*, *Acrocephalus arundinaceus orientalis*, and *Charadrius semipalmatus*.

Mortality among birds during the February Frost. By H. M. Wallis.

British Birds. X, No. 12. May, 1917.

Polygamy among Rooks. By E. B. Dunlop.

The Moults of the British Passeres, with Notes on the Sequence of their Plumages. By H. F. Witherby.— The Flycatchers and Warblers.

Avicultural Magazine. VIII, No. 4. February, 1917.

The Influence of German Aviculture. By W. E. Teschemaker.— A very interesting historical paper with extracts from early works on bird-catching and training.

Are Birds Easily Deceived? By A. G. Butler.— The use of stick-insects as bird food and various experiments with 'protectively colored' insects seem to show that cage birds have very little difficulty in detecting these 'protected' insects.

Sheathbills. By Graham Renshaw.— An interesting popular account of these curious birds.

Avicultural Magazine. VIII, No. 5. March, 1917.

Whydahs. By W. S. Baily.— Important data on molting and nest building in captivity. The males apparently always built the nests.

Notes on Some of the Vireos (or Greenlets) of North America. By The Lady William Cecil.— A popular account of various species observed in different parts of America. A Black-headed Vireo observed in Texas is hailed as a "Fourth specimen of this extremely rare bird .... of which Dr. Coues says only three specimens known." Does the writer suppose that American Ornithology has stood still since the 'Birds of the Colorado Valley' appeared?

Some Birds of the Balkans. By Capt. B. E. Potter.

Change of Colour in the Blue Wren (*Malurus cyaneus*) as affected by Seasons. By H. D. Astley.— Now acquires the full plumage in spring instead of autumn as it did in Australia, but the molting since it reached England seems to have been somewhat irregular.

Avicultural Magazine. VIII, No. 6. April, 1917.

The Celebean Maleo. By Graham Renshaw.

Capacity in Nest-construction. By A. G. Butler.— Accepting polyandry as an undisputed fact in the English Cuckoo the author states that the pursuit of the female by several males, which he has witnessed, suggests that she "is so pestered by the attentions of numerous suitors that she has no time to spare for nest-construction."

Avicultural Magazine. VIII, No. 7. May, 1917.

The Coming of the Nightingale. By W. E. Teschemaker.

Water Rails Calling. By A. Trevor-Battye.

Some Tasmanian Birds' Nests. By H. Stuart Dove.

The Display of the Blue Wren (*Malurus cyaneus*).

Bird Notes. VII, No. 7. July, 1916.— VIII, No. 3. March, 1917. Nine monthly numbers mainly devoted to cage birds. Of especial interest are the following:

In July: Grebes. By W. S. Baily.

Bird-catching in India. By D. Dewar.

In February: Nesting of the Black-breasted Quail. (Colinus pectoralis.) By W. S. Baily.

In March: Some Toucans. By W. T. Page.

Bird Notes and News. VII, No. 5. Spring, 1917.

Food-Crops and Birds. Emphasis is placed upon the increased importance of protecting birds during the present period of food shortage when it is imperative to get the largest possible return from our crops, and when advantage must be taken of every factor which will keep insect pests in check. The reviewer has taken the same stand in a course of lectures recently given in South Carolina and would suggest the advisability of all those working in the interests of bird protection to emphasize this point.

Salmon-Flies and Rare Birds' Feathers. By W. Baden-Powell.— Demonstrates that the gut of silk worms dyed in brilliant colors is just as effective for the construction of 'flies' as the brightest natural feathers

known. This effectually removes a stock argument of the plumage dealers to enlist fishermen against legislation prohibiting the importation of plumage.

The Emu. XVI, Part 4. April, 1917.

North Australian Birds. Observed by William McLennan. Communicated by H. L. White.— An annotated list of 198 species in which the nomenclatural tangle that confronts the Australian ornithologist is solved by using both the R. A. O. U. names and those of Mathews' List for every species!

Notes on a Collecting Trip in the Lower North of South Australia. By Edwin Ashby.

Bird Life as Affected by Drought. By Charles Barnard.

Observations from the Fern-tree Gully District (Vic.). By R. T. Littlejohns and S. A. Lawrence.

Description of the Nest and Eggs of *Melithreptus atricapillus mallee* Math. By F. E. Howe.

Obituary. Dr. E. P. Ramsay.

The South Australian Ornithologist. III, Part 2. April, 1917.

Birds of the North and North-West of Australia. By G. M. Mathews. (Continued.)

Further Notes upon the Arctic Skua (*Stercorarius parasiticus*). By S. A. White.

Notes on *Ashbyia lovensis* and *Amytornis merrotsii*. By J. R. B. Love.

Journal of the South African Ornithologists' Union. XI, No. 2. December, 1916.

Observations on the Birds of the District of Humansdorp, Cape Province. By B. A. Masterson.

The Summer Migration of 1915, as Observed in the Eastern District of the Cape Province. By Rev. Robert Godfrey.

Revue Francaise d'Ornithologie. IX, No. 94. February, 1917. (In French.)

Bird Killing in Provence. By J. l'Hermite. (Continued in March and April.)

The Trade in Birds at Dakar. By Dr. Millet-Horsin. (Continued in March.)

Study of a collection of Birds from Matto Grosso. By A. Menegaux. (Continued in March and April.)

Ardea. V, No. 3–4. December, 1916. (In Dutch.)

The Hovering of Birds. By Dr. C. A. Crommelin.

Remarks on the Secretary-bird. By F. E. Blaauw.— Photographs of the bird, nest and egg.

Wintering of the Avocet in Zeeland. By G. J. Van Oort.

The Nightingale in Captivity. By J. L. F. Meyere.

At What Height do Birds Migrate? By A. A. Van Pelt Lechner.

Ardea. VI, No. 1. April, 1917.

Migration Records for Holland in 1916. By Dr. H. Ekama.

Ornithological Articles in Other Journals.[1]

Oldys, Henry. The Meaning of Bird Music. Claims that its development is due to the same causes that have been responsible in the development of human music. (The American Museum Journal, Feb., 1917.)

Skinner, M. P. Some Birds of the Yellowstone. (*Ibid.*)

Miller, Leo E. A Search for *Scytalopus*. (The American Museum Journal, March, 1917.)

Lucas, F. A. A Forgotten Naturalist. (*Ibid.*) Sketch of Titian R. Peale.

Hornaday, Wm. T. The War for America's Wild Life. (The American Museum Journal, April, 1917.)

Cherrie, Geo. K. To South America for Bird Study. (*Ibid.*)

Patch, Clyde L. My Bird Houses. (Ottawa Naturalist, March, 1917.) — Interesting observations.

Farley, Frank L. Birds Observed at Grande Prairie City District. (*Ibid.*)

Cooper, John M. Birds of Lake Onigamis Region, Que., and Algonquin Park, Ont. (Ottawa Naturalist, January, 1917.)— Annotated lists.

Criddle, S. and N. Horned Larks at Aweme, Manitoba. (Ottawa Naturalist, February, 1, 1917.)— Notes on habits and abundance of the four races which occur there.

Collinge, W. E. The Economic Status of Wild Birds. (Scottish Naturalist, March, 1917.) Reprinted from the Jour. Royal Hort. Soc.

Boase, Henry. Observations on Some Habits of the Coot. (*Ibid.*)

Chapman, Abel. Brent Geese. (Scottish Naturalist, April, 1917.) — States that as both dark and light-bellied Brant breed together in Spitsbergen and elsewhere in northern Europe that they cannot be regarded as geographic races. A note from Dr. Hartert corroborates his statement and further calls attention to the fact that the name *glaucogastra* of Brehm applies to the dark bellied form not the light as used in the A. O. U. Check-List. Heretofore the light-bellied Brant occurring in England in winter were supposed to be migrants from America which was considered to be the exclusive breeding ground of the light-bellied form. Other notes on the subject occur in the February and May numbers.

Allen, A. A.—The Waxwing Family. (American Forestry, February, 1917.)—A study of the Cedar Waxwing with photographs of the nest and young.

Storrs, Caryl B. Minnesota's Wild-Life Museum. (The Minnesotan, March, 1917.)— An account of the work of Dr. Thos. S. Roberts.

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[1] Some of these journals are received in exchange, others are examined in the library of the Academy of Natural Sciences of Philadelphia. The Editor is under obligations to Mr. J. A. G. Rehn for a list of ornithological articles contained in the accessions to the library from week to week.

Roberts, Thos. S. A Minnesota Springtime Bird Calendar. (*Ibid.*) Illustrated with original photographs.

Bartsch, Paul. Birds Observed in 1916, in the Region of Miami and the Florida Keys from May 15 to June 4 and along the Railroad from Key West to Miami on June 24. (Yearbook Carnegie Institute, 1916, pp. 182–188.) — Fifty-four species, eight of which are additional to similar lists of previous years.

Stone, W. A New Hummingbird from Colombia. (Proc. Acad. Nat. Sci. Phila., 1917, pp. 203–204. June 8, 1917) — *Lepidopyga lilliæ* (p. 204), Punto Caiman, Santa Marta, Col.

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Peters, Jas. L. The Porto Rican Grasshopper Sparrow. (*Ibid.,* pp. 95–96, May 23, 1917.)—*Ammodramus savannarum borinquensis* subsp. nov. (p. 95).

Wetmore, Alexander. A New Honey-eater from the Marianne Islands. (*Ibid.* pp. 117–118, May 23, 1917.)—*Myzomela rubratra saffordi* subsp. nov. (p. 117), Guam.

Oberholser, H. C. Description of a New Genus of Anatidæ. (*Ibid.,* pp. 119–120, May 23, 1917.)—*Horizonetta* proposed for the Laysan Duck, *Anas laysanensis* Rothsch.

Oberholser, H. C. Mutanda Ornithologica. (*Ibid.* pp. 75–76, March 31, 1917.)—*Nettion torquatum* (Viell.) becomes *N. leucophrys* (Viell.). *Cloephaga magellanica* (Gm.) becomes *C. leucoptera* (Gm.). *Cerchneis gracilis* (Less.) becomes *C. arœa,* nom. nov. (p. 75) and *C. alopex deserticola* Reich. becomes *C. a. eremica* nom. nov. (p. 76). *Rallus intermedius* Milne Edwards becomes *R. adelus* nom. nov. (p. 76).

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CORRESPONDENCE.

Plumage Importation in England.

EDITOR OF 'THE AUK':

A long-delayed letter (dated February 26, 1917) has come to me from Mr. James Buckland of London bringing the important news that for the duration of the war the importation of the plumage of wild birds into England has been suspended. Efforts are to be made, Mr. Buckland says, to have the suspension of the traffic made permanent. That these efforts will be successful there would seem to be little doubt, in view of the period of stress that will follow the conclusion of the war. The British parliament would not be likely to re-open traffic in such an absolute luxury in the midst of the keen struggle for necessities that will follow the cessation of hostilities, more especially since the chief beneficiary of such action would be Germany.

Faithfully yours,

HENRY OLDYS.

Silver Spring, Md., April 25, 1917.

Coloration of Down in Adult Ducks.

EDITOR OF 'THE AUK':

With reference to Mr. J. H. Bowles's remarks concerning the coloration of the down in ducks (Auk, 1917, pp. 206–7) a paper by Miss A. C. Jackson on the moult of ducks (British Birds, July, 1915, vol. IX, pp. 34–42) should be consulted. Briefly stated, Miss Jackson there shows that in

certain species of ducks the females have a spring moult of the down as well as of other parts of the plumage and that not only is the winter down renewed but in addition there grows what she terms a "nest down," which is longer, coarser and of a different color.

Yours faithfully,

H. F. WITHERBY.

326 High Holborn, London, W. C.

EDITOR OF 'THE AUK':

In 'The Auk' (XXXIV, pp. 206–207) is an interesting note by Mr. Bowles, calling attention to the differently coloured down in winter and summer in a number of Ducks. Apparently the author has not seen Miss Jackson's article in 'British Birds' (IX, p. 35, 1915) where she describes the down-moult of certain Ducks. It was first discovered by me in the Long-tailed Duck (*Clangula hyemalis*), where it is very striking, the down being whitish in winter and moulting into an almost black one in the spring. While studying Ducks I had already noticed that the description of nest-down did not agree with what I found on female ducks, but I did not grasp the reason, until I noticed the change in the Long-tailed Duck or "Old Squaw". Miss Jackson soon after, while working in the Tring Museum, discovered, to use her own words (l. c.) "that the females of the surface-feeding Ducks and those of the genus *Nyroca* also acquired a special down just before the breeding season. Female *Tadorna tadorna* also have a down-moult in spring. This down is evidently used for embedding the eggs during incubation, and has been designated 'nest-down' by Dr. Hartert, a term I propose to use in describing it." I believe that all palæarctic Ducks, or at least the majority of them, have a down-moult in spring, but in some species the colour is the same, though the nest-down is often longer and coarser than the ordinary down. Where there is no material difference in colour, the down-moult is difficult to observe in skins, but of course very easily seen when one skins a fresh bird. I may add that Miss Jackson's article contains also valuable details about the spring-moult in adult females of several British Ducks, which must also take place in American species.

ERNST HARTERT.

Tring, May 15, 1916.

Subspecific Designations.[1]

EDITOR OF 'THE AUK':

The exception taken in 'Bird-Lore' to the current practice of subspeci-

[1] Published by permission of the Deputy Minister of Mines, Canada.

fically naming birds[1] by geographic probability is most timely. How can any one name the exact race on a sight record or, if specimens are taken, when they have not been compared with an authentic series and how useful are determinations when so made? They add nothing to our knowledge. If they agree with current conceptions they only reiterate previous statements without substantiating them; if they disagree they are futile unless supported by evidence. Further, if a writer knows the geographical probabilities, can he not assume that the same evidence is accessible to a reader? At best, the practice (the common one) is useless and too often fixes misconceptions instead of correcting them.

Then, what is the necessity of subspecifically naming everything seen, heard or written about regardless of the context? Is not the specific name close enough in the majority of cases? In ordinary practice we do not deem it always necessary to speak of a horse or dog by the name of its technical strain or race. We do not often find it necessary to speak of Clydesdale Horses, Guernsey Cattle or Blue Belton Setters, when we refer to horses, cows or dogs. When engaged in highly critical work or in special lines of investigation, where exact relationship is more or less the essence of the subject, we can use the most exact technical terminology, but how often is such refinement necessary, and if necessary is it safe to trust to mere unverified probability?

In cases cited by "J. D.", Evening Grosbeak, *Coccothraustes vespertina* or Hudsonian Chickadee, *Penthestes hudsonicus* are just as satisfactory as Eastern Evening Grosbeak or Acadian Chickadee. They tell just as much as the others, for one ornithologist should be as capable of determining the probabilities of geographic distribution as another. If a writer knows certainly the individual identity, or wishes to call attention to the subspecific distinction as such, he can be as definite as his knowledge permits or the case demands, but it smacks of pedantry to be needlessly precise and is often misleading.

Nowadays when ornithologists are splitting so finely and keen authorities disagree so widely not only upon what forms to recognize but also upon the applications of individual identity, the personal authority of a determination is quite as necessary as the identity itself. The fact is that the subspecies is a highly technical subdivision and of very little interest or use to the non-technical student who can usually avoid it with safety to himself and benefit to science. Many of the abuses of modern feather-splitting would be obviated if less importance was placed upon the subspecies. However true these forms may be as matters of fact they are the smallest and least important of zoölogical divisions. We have studied these slight differences so closely and with such concentration that in many minds these minor racial differences have eclipsed the major specific likenesses. If we altogether ignored subspecies except where their use was found neces-

[1] Review of Ornithological Magazines,—'The Auk', by J. D. Bird-lore, Mar.,-Apr., Vol. XIX, 1917, p. 97.

sary, and then only after verification, a great number of imaginary, useless or very slight distinctions would automatically sink into practical obscurity while those whose value was proved by their continued use would be confirmed.

It is unfortunate that the A. O. U. Committee has not seen fit to give us in the Check-List vernacular specific names. Each subspecies, no matter how slightly defined, has been given a distinctive popular name, but at present we have no means of speaking vernacularly of the more much important group, the species. Instead, in many cases, the proper specific name has been applied to one of the subordinate races, usually the type form, thus restricting to one race the term and popular concept that properly belongs to the whole species. A Shetland pony is as much a Horse as is a Clydesdale, and a dog is a Dog whether setter or hound. So an evening grosbeak is still an Evening Grosbeak whether it belongs to the western or the eastern group, and a robin is an American Robin whether it is *P. m. migratorius* or *P. m. propinquus*. The current practice of the A. O. U. has fostered the feeling that when a subspecies is defined the type form remains the species while the new form is subordinate to it. In fact our concepts, or at least the popular expression of them, have not kept pace with the growth of the trinomial system. The species does remain intact in spite of the fact that we discern minor groupings within it and so should be presented in our nomenclature. All this has been provided for in the authorized latin nomenclature for the scientific student who should already be possessed of correct principles, but the general public which draws most of its inspiration and forms a large part of its fundamental concepts from the popular system of English names is given a misleading guide. The vernacular system was designed primarily for the use of the general non-scientific public and not for the scientist who has only adopted it informally as a matter of colloquial convenience. Why not adapt it to its original purpose and as the work of scientific minds make it inculcate scientific truths rather than misstatements.

Considering all things, the unwisdom of encouraging careless subspecific designation, the general public's lack of legitimate interest in a purely technical subject, and the convenience of all concerned, why not cut the Gordian knot cleanly and while restoring the logical names to the species discard subspecific vernacular names altogether? The very fact of having no convenient vernacular handle for merely technical distinctions would automatically instil caution in the inexpert by eliminating the familiarity that breeds contempt, without hampering the specialist. The sooner the species is given a popular name, the facts of subspecific relationship presented to the public with scientific accuracy and perspective and the indiscriminate use of the subspecies by the inexpert discouraged, the sooner will some of the difficulties of the present practice disappear.

P. A. Taverner.

Ottawa.

[The first paragraphs of Mr. Taverner's communication, and comments in the current numbers of some of our ornithological journals bring up a matter of very great moment to editors, *i. e.* What to do with sight records and how to be consistent in the practice of any plan that may be adopted? A few remarks on this subject would seem to be in order although they do not cover the main point of Mr. Taverner's letter.

'The Auk' has questioned the accuracy of certain 'sight' records published elsewhere and has in turn been criticized for certain 'sight' records that have appeared in its own columns. 'J. D.' writing in the review pages of 'Bird-Lore' criticizes the publication of 'sight' records — more particularly of races only slightly differentiated from others, yet we rarely find any but 'sight' records in 'Bird-Lore' and the last number contains a positive 'sight' identification of *Dendroica dominica dominica* although it is questionable whether this race can be positively distinguished in the field from *D. d. albilora*. 'The Condor' recently contained a severe editorial criticism of the publication of 'sight' records by incompetent observers and scored authors who have not posted themselves on the previous literature of their subject, yet in the same issue appeared the first record of a certain bird for the State of Texas, a 'sight' record, casually published, without editorial comment by an author whose name does not appear in any of the indices to 'The Condor' as a previous contributor to ornithological literature. Certain minor ornithological journals and independent publications of 'bird clubs' consider that all is grist that comes to their mill and publish any records that their members may hand in. These statements are made not in a spirit of criticism but simply to show the difficulty of consistency and also the nature of the condition that we face.

Now as to the best plan to adopt in regard to 'sight' records. We may, it would seem, divide such records into two categories: (1) Races or species which so closely resemble other forms as to render positive identification impossible without having a specimen in hand. (2) Species which are rare or unusual in the locality at which the observation is made and with which the observer has perhaps had no previous experience. In cases of the first category the extreme attitude would be to publish no records except those based upon specimens actually collected. This would of course be out of the question. Almost all of our data on bird migration, bird habits, etc. are based upon 'sight' records and must of necessity be so. As a matter of fact we are willing to accept practically all sight records for everyday birds and only balk when it comes to records of rare or unusual species. There is just as much chance of one of the Juncos that we record as *J. hyemalis hyemalis* belonging to one of the western races as there is of the Evening Grosbeak of the past winter belonging to the western instead of the eastern form, the possibility to which 'J. D.' calls attention. But we fail to see where we should profit by refusing to record observations on eastern Juncos under the caption *Junco hyemalis hyemalis*. Any compiler of a state report or general work where subspecies are used will undoubtedly quote our observations under that heading because the evidence of speci-

mens actually collected is so overwhelmingly in favor of the accuracy of this disposal of them. Therefore why should not the original observer make the same assumption? If we adopt Mr. Taverner's plan for *all* sight records of trinomially named birds we see no possible alternative but to abandon the use of subspecies entirely. Another point to be considered in this connection is the case of *species* which are very close to one another such as the Black-capped and Carolina Chickadees; Olive-backed and Gray-cheeked Thrushes; Louisiana and Northern Water-Thrushes; Western and Semipalmated Sandpipers, Common and Long-billed Dowitchers, etc. Some observers, under certain conditions, can distinguish most of these in life, but there are others who surely cannot. How can Mr. Taverner's plan be applied to these? Trinomials we may remind him do not represent degrees of difference but the fact of intergradation, and there are certain subspecies which can be separated far more easily than can some species. If subspecies are abandoned as such many of them will have to be elevated to specific rank, as all of them are in Sharpe's 'Hand List' and certain other works.

'J. D.'s criticism points out no definite policy and we are not clear whether he has Mr. Taverner's plan in mind or whether he would reject 'sight' records of this kind entirely. We can hardly suppose that he takes the latter view since we think that everyone will admit that we gain something by recording the fact that Evening Grosbeaks of some kind visited us last winter even though we cannot say just which race each flock belonged to.

Now we are not rejecting Mr. Taverner's plan entirely. We think it is an excellent one in cases where a reasonable doubt exists as to the identity of the subspecies or in intermediate territory where two subspecies merge one into the other. In fact the plan has already been used in 'The Auk' but unfortunately it has caused misunderstanding, for the following reason. It often happens either from preference or accident, that the binomial form (*Junco hyemalis*, for instance) is used to indicate the eastern race of Junco instead of the more proper trinomial form (*J. hyemalis hyemalis*), as was the general custom prior to the last A. O. U. 'Check-List'. It is thus not clear without further explanation whether the binomial name refers to the eastern race alone, or to this whole group of Juncos without indication of any individual race, as Mr. Taverner would use it. It would therefore seem clearer to adopt the plan used by Mr. Mousley (Auk, 1917, p. 215) in recording a brown-headed Chickadee, i. e. "*Penthestes hudsonicus* subsp.?" Mr. N. C. Brown on the same page adopts Mr. Taverner's plan and writes "*Penthestes hudsonicus*," but has to add a statement that the form of the subspecies was not determined, in order to make it clear that he was not recording the true *P. hudsonicus hudsonicus*. In the case of 'sight' records of closely related *species* Mr. Taverner has no suggestion and we can apparently only take the word of the observer if he be reasonably reliable, although even in the case of reliable persons there must always be a certain percentage of error in such cases. Long experience in compiling migration records leads us to place far less reliance upon the average

dates computed from sight records for the smaller thrushes and members of the genus *Empidonax*, than for any other species, and we feel that any general statement of the time of occurrence of these and a few other species based on 'sight' records, when we know that the closely allied species was also present, should be accompanied by another based solely upon such *collected* specimens as may be available.

So much for the class of cases discussed by 'J. D.' and Mr. Taverner. Now as to the second category we feel that there is no escape for the editor and that he must simply use his best judgment as to what to publish and what to reject. No definite rules can be set up for him to follow. Several factors enter into the question; the reliability of the observer; the circumstances of the observation; and the possibility of identification under the conditions given. A record of a rare warbler, for instance, is received. If we know nothing of the observer we make inquiries, and if the record is lacking in circumstantial details, we ask the observer for a more detailed statement. If all these prove satisfactory, if there was adequate time for a full study of the bird at close quarters with glasses, and characteristic markings were noted on the spot, and identification verified later from books or specimens, then the record seems worthy of acceptance provided that the editor feels that he, as an average observer, could identify the bird under the same circumstances.

In the case of obscurely colored birds or those which have no prominent distinctive markings, and which cannot often be closely approached, like shore birds, gulls and other water birds; or warblers in autumnal plumage, we should probably reject all 'sight' records of rare or unusual species unless made under very exceptional circumstances. Rejections such as those referred to do not in any way reflect upon the accuracy or good faith of the observer. They are simply cases that are physically impossible of definite determination without resort to the gun.

In regard to obvious errors of observation, Dr. Frank M. Chapman, in a discussion of this question [1] which can be read with profit in this connection, says: "it is difficult, in fact sometimes impossible, to convince the observer of his error." We have found that by placing before him unnamed skins of the bird the observer thought he saw, and of other allied species, at about the distance at which the live birds were seen, that he is made to realize more clearly the difficulties which enter into the case.

As we said before we cannot govern publication. All sorts of sight records, good, bad and indifferent are being published and will be published in increasing numbers. We face a condition not a theory, and the compiler of general works and faunal lists must decide for himself what to accept and what to reject, but if editors will try to live up as closely as possible to some such plan as above outlined they cannot fail to assist him materially in his work. Mr. Taverner's suggestion to provide vernacular names for the specific groups as the 'Check-List' has both advantages and disadvantages. The current use of "Brown-headed Chickadee" for the un-

[1] Bird-Lore, 1902, p. 166.

determined subspecies of the Hudsonian group is evidence of the need of such a term under such conditions. But the task of making the average amateur understand the use of the more or less abstract specific designation when each "variety" has its own latin name is not an easy one. He wishes to use a name for a concrete thing not for a group, so that unless we abandon subspecies entirely we doubt the practicability of using specific vernacular names.— WITMER STONE.]

NOTES AND NEWS.

DR. EDWARD PIERSON RAMSAY, of Sydney, Australia, a Corresponding Fellow of the American Ornithologists' Union since 1884, died at his home in Truro, near Sydney, December 16, 1916, at the age of 74. He was born at Dobroyde House near Sydney in 1842. He was a Fellow of the Royal Society, a Fellow of the Linnæan Society, an honorary member of the Field Naturalists' Club of Victoria and for twenty years, from 1874 to 1895, curator of the Australian Museum in Sydney. He was one of the leading Australian ornithologists of his time and was also interested in botany and entomology.

His first paper on birds entitled 'On the *Didunculus strigirostris*, or Tooth-billed Pigeon from Upolo," appeared in the 'Ibis' in 1864 and during the next 30 years he published many papers on zoölogy. The list of his publications in the 'Royal Society's Catalogue of Scientific Papers' numbers 120 titles and most of them relate to birds. His earlier contributions appeared in the 'Ibis' and the 'Proceedings of the Zoological Society of London,' but after 1877 he published most of his papers in the 'Proceedings of the Linnæan Society of New South Wales' and in the 'Records of the Australian Museum.' One of his best known publications on ornithology was his 'Tabular List of all Australian Birds at present known' issued in two editions in 1878 and 1888. He was also author of 'Notes on Food Fishes and Edible Mollusca of New South Wales,' 1883, and of a number of short papers on mammals and fishes.

In commemoration of his work a genus, *Ramsayornis* Mathews, 1912, and at least 10 species of birds and two of mammals have been named in his honor.— T. S. P.

NEWELL A. EDDY became an Associate Member of the American Ornithologists' Union in 1885, and retained his membership for a long series of years.

He died at his home in Bay City, Michigan, on February 28, 1917.

Mr. Eddy was born in Bangor, Maine, May 20, 1856, being the son of

Jonathan and Caroline (Bailey) Eddy. His father was one of the leading lumber manufacturers of Maine, and was descended from the Rev. William Eddy, a vicar of Cranbrook, County of Kent, England, whose son, Samuel settled in Plymouth Colony in 1630. His great grandfather Col. Jonathan Eddy, served with distinction in the Revolutionary war.

Mr. Eddy received his education in the public schools at Bangor, at Phillips Academy, Andover, Mass., and at Yale College, from which he graduated in the class of 1879. He was married in February, 1880, to Marianna, daughter of Dr. Edward M. Field, of Bangor, Me. His wife and six children survive him.

Mr. Eddy was an authority on bird life in Michigan, and had in his possession what was said to be the largest collection of birds in the State, all of which he had collected and mounted himself, and he had assisted in the publication of works on Michigan birds.

He was a member of the Bay City school board for six years, and was an officer of various business and financial companies.— H. M.

Gustav Adolph Link, Assistant Preparator in the taxidermic department of the Carnegie Museum, died at Pittsburgh, Pa., on August 16, 1916, from the effects of a bite accidentally received on the preceding day from a captive rattlesnake. Mr. Link was born in Pittsburgh on May 15, 1860, and became interested in collecting and preserving birds at an early age, forming a very creditable collection of the local species. In 1898 he joined the staff of the Carnegie Museum as assistant in the taxidermic laboratory, where, working under the direction of Mr. Frederic S. Webster, he mounted by far the largest part of the single specimens of birds now on exhibition in the gallery of birds of that institution. Many of the mounted reptiles, too, are examples of his work. Mr. Link was a member of a party from the Carnegie Museum which went to Texas in the summer of 1907 to collect reptiles, in which he was very successful. He collected reptiles also in the Isle of Pines in May and June, 1910, and was sent to the same locality again in 1912 to collect birds, his stay lasting from June of that year until May of the next. The large and representative collection which he brought back formed the basis of the present writer's paper on the ornithology of this island, recently published in the 'Annals of the Carnegie Museum' (Vol. X, 1916, pp. 146–296). Mr. Link's perseverance and enthusiasm, in spite of the many difficulties under which he labored, served him in good stead in bringing to a successful conclusion the various projects in which he engaged, and the tragic manner of his taking off was a great shock to his many friends both in and outside of the institution where he spent so many years of faithful service.— W. E. C. T.

Norman DeWitt Betts, an associate of the American Ornithologists' Union since 1908 and a contributor to 'The Auk', was killed by lightning on his ranch in northeastern Utah, on May 21, 1917.

He was born in New York City on July 21, 1880. His parents, both

dead, were John McEwen and Ellen Scofield Betts. His first schooling was received at Welton Academy and Chases Academy at Norwalk, Conn. From there he went to Cornell where he graduated as a mechanical engineer. After holding a position in New York in the Westinghouse Company he followed the call of the West and landed on the ranch of a friend in Utah where he learned to love the semi-wilderness which was so dear to him afterwards.

Joining the Forestry Service he was engaged in field and laboratory work in Lafayette, Ind., St. Louis, Mo., Boulder, Col., and Madison, Wis., but routine work did not satisfy his active spirit, and leaving Madison in the summer of 1916 he bought a ranch adjoining that of his friend in Uintah County, Utah, fifty miles from the railroad, and settled down to the life of a rancher. He was on horseback in company with a herder who was bringing in some sheep when a storm overtook them not far from home. Mr. Betts received the full force of the bolt and was killed instantly as was his horse and that of the herder but the latter was only stunned and recovered. Mr. Betts was buried at Walden, N. Y., beside his parents.

His first ornithological contributions were published in 'The Auk' and 'Bird-Lore' in 1909 and 1910, and he continued to send in his observations on the birds of Colorado, Wisconsin and Montana to these journals and 'The Condor' every year until his removal to Utah. His most important publication was his 'List of the Birds of Boulder Co., Colo.' (see Auk, 1914, p. 416).

Whoever had the good fortune of Mr. Betts' acquaintance will miss him sorely, for his character was exemplary and his personality most charming. Ornithology itself sustains a real loss, for having trained himself for efficient bird study in the most difficult fields he was at the point of doing much valuable work in the little known region of his new home.— O. W.

Samuel Thorne, an Associate of the American Ornithologists' Union, from 1908 to 1915, died July 4, 1915, in his 80th year. He was born in Dutchess County, N. Y., Sept. 6, 1835, and in early life was a farmer and breeder of improved stock at Thorndale, N. Y. From 1868 to 1872 he was engaged with his brothers in New York in tanning and selling leather. He retired from this business in 1872 and in his later years became a director in several railroads and banks, and in the New York Life Insurance and Trust Company. Mr. Thorne was a patron of science and was deeply interested in the New York Botanical Garden and the New York Zoölogical Society. As one of the early members of the Executive Committee he took an active part in the constructive work of the Zoölogical Park, and at the time of his death he was Vice-President of the Zoölogical Society.— T. S. P.

Among the deceased members of the A. O. U. whose obituaries have not been published in 'The Auk' is Henry Warden Marsden, an associate from 1904 to 1914, who died at Pacific Grove, Calif., Feb. 26, 1914, at the age of

57. Readers will find in 'The Condor (Vol. XVI, pp. 202–204, Sept., 1914), an interesting sketch of his life by Dr. Louis B. Bishop, with an account of his work and a list of his papers.

On July 28, 1916, the Sociedad Ornithologica del Plata was organized at Buenos Aires, Argentina. Dr. Roberto Dabbene was chosen president of the society and Sr. Pedro Serie, secretary.

The Council and Mayor of Youngstown, Ohio, have decreed that the new reservoir with its adjacent shores shall be a game preserve with all hunting and trapping prohibited. Inasmuch as this reservoir has a surface area of 2700 acres and is six miles long and in places is over a mile in width, is located seventeen miles from the city, and is the largest inland body of water in northeastern Ohio, its value as a protected reserve for birds can readily be appreciated.

The municipal authorities of Youngstown are certainly to be congratulated for their far-sightedness and their understanding of the need for wild life protection. We wish more of our cities had officials with the same appreciation of such matters.

Mr. W. DeWitt Miller, Associate Curator of Ornithology in the American Museum of Natural History, accompanied by Mr. Ludlow Griscom, reached Corinto, Nicaragua, March 10th, on an American Museum expedition to acquire a field knowledge of Nicaraguan birds. They were met and guided in Nicaragua by Mr. William B. Richardson, a resident of that country, who had collected much in tropical America for the Museum. Mr. Miller writes under date of May 2nd: 'We have.... traveled hundreds of miles on muleback, done some collecting and made many observations of interest. We already have several species new to Nicaragua....including *Euphonia elegantissima*, previously known both from Mexico and from Costa Rica but not between....One of the most interesting birds we have met is *Megaquiscalus nicaraguensis*....the most abundant bird about the village of Tipitapa....Besides skins of ♂ and ♀ we have nests, eggs and photographs. This species is confined to these two Nicaraguan lakes.' The party visited as many diverse parts of the country as possible, and expected to sail for home about June 1st.

Mr. W. E. Clyde Todd headed an expedition to the interior of Labrador which left Pittsburgh in May, to collect birds and mammals for the Carnegie Museum.

On April 20, Mr. John Hall Sage, Secretary of the American Ornithologists' Union was the guest of Dr. A. K. Fisher, at the camp of the Washington Biologists' Field Club, at Plummer's Island in the Potomac near Washington, D. C., where they were joined by sixteen other fellows and members of the Union who gathered there in honor of Mr. Sage's seventieth

birthday. We are sure that the entire membership of the A. O. U. which he has served so long and faithfully will endorse the action of the Plummer's Island gathering in wishing him many happy returns of the day.

MR. HARRY S. SWARTH of the Museum of Vertebrate Zoölogy at Berkeley, Calif., is now in southern Arizona studying the breeding birds of the region between Phoenix and Globe along the 'Apache Trail'. As a result of this trip Mr. Swarth will doubtless be able to supplement the notes in his 'List of the Birds of Arizona' on the local distribution of some of the species which occur in this part of the State.

As an illustration of the vital interest that is being taken throughout the country in the passage of the Migratory Bird Treaty Enabling Act; and as an example to other associations and individuals who have not yet written to their representatives in Congress, it gives us great pleasure to announce that at a meeting of the Executive Committee of the National Association of Game and Fish Commissioners held at Washington, D. C., on the 13th day of June, 1917, present, M. L. Alexander, President; Carlos Avery, Secretary; John P. Woods, Treasurer; J. Quincy Ward, Geo. H. Graham, and W. E. Barber, the following resolution was unanimously adopted:

WHEREAS, There is pending in Congress a bill (S. 1553 — H. R. 2612) to give effect to the migratory bird treaty between the United States and Great Britain for the protection of migratory game and insectivorous birds in the United States and Canada; and

WHEREAS, The conservation and protection of the migratory insectivorous birds is so closely related to the conservation of the food, cotton and timber crops of the country, and the migratory game birds constitute an important source of the food supply, the conservation of which is so necessary to the success of the United States and her Allies in the war upon which we are now engaged;

THEREFORE, BE IT RESOLVED, It is the sense of the Executive Committee of the National Association of Game and Fish Commissioners that the said bill is and should be considered an important war measure, and we respectfully recommend the immediate passage of said bill by Congress as one of the most effective means of conserving the resources so necessary for the welfare of the country;

RESOLVED FURTHER, That a copy of these resolutions be forwarded to the President of the United States, to each Member in Congress, and to the Secretary of Agriculture.

JUST as we go to press we are in receipt of an important work by Dr. W. H. Bergtold entitled 'A Study of the Incubation Periods of Birds,' published by The Kendrick-Bellamy Co. of Denver, Colorado. It will be duly noticed in the October Auk.